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REPORT

OF THE

COMMISSIONER OF EDUCATION

FOR

THE YEAR 1896-97.

VOLUME 1.

CONTAINING PART I.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1898.

THE UNITED STATES

BUREAU OF EDUCATION,

Created as a Department March 2, 1867.

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COMMISSIONERS.

HENRY BARNARD, LL. D.,

March 14, 1867, to March 15, 1870.

JOHN EATON, PH. D., LL. D.,

March 16, 1870, to August 5, 1886.

NATHANIEL H. R. DAWSON, L. H. D.,

August 6, 1886, to September 3, 1889.

WILLIAM T. HARRIS, PH. D., LL. D.,

September 12, 1889, to date.

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DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 1, 1897.

SIR: I have the honor to submit herewith the annual report of this office for the year ending June 30, 1897:

Total enrollment in schools and colleges.—There were enrolled in the schools and colleges, both public and private, during the school year 1896–97, 16,255,093 pupils, being an increase of 257,896 over the preceding year. Of this total 1,513,016 pupils were in private institutions and 14,742,077 in public institutions. Comparing these figures with those of the previous year it will be seen that the increase of pupils is confined to the public institutions. In fact there appears to have been a slight decrease in the total number attending private institutions, namely, about 1¼ per cent. This is doubtless due to the long continuance of what is called "hard times." When manufacturing and commercial enterprise is checked, capital becomes timid and the surplus of labor which has hitherto been engaged in the two classes of employment represented in the manufacture and exchange of goods is obliged to fall back upon agriculture. The large proportion of the laborers engaged in these two employments has originally come from the farm population, and turning from farming to manufacturing and commerce the population consumes the products of agriculture and creates a better market for the farm, while on the other hand it cheapens the products of manufacture and lessens the cost of the exchange of goods, so that the farmer gains in three ways, first by having fewer farmers to compete with, second by having a market near at hand, and third by having the cost of transportation of all the goods which he receives from a distance or sends to a distance reduced. With these facts in mind it is very easy to understand how a check in commerce and manufactures affects disastrously the wealth of the nation. The shrinking of fortunes and incomes affects the private school.

Besides these pupils enrolled in public and private institutions classed as elementary schools, secondary schools, and higher educational institutions, there are pupils enrolled in various special schools not included in the above figures. These items are as follows:

City evening schools	183,168
Business schools	77,053
Indian schools	22,964
Schools for defective classes	22,624

Reform schools	24,426
Benevolent institutions, chiefly orphan asylums that do not send to the public schools in their vicinities	13,309
Miscellaneous	49,650
Total	393,194

The miscellaneous in the above table includes such institutions as schools of music, oratory, elocution, schools of various arts, such as cooking, etc. This gives 16,648,287 as the grand total.

THE COMMON SCHOOLS.

The expression "common schools" is used in this office to include public schools of elementary (first eight years' course of study) and secondary grades (ninth to twelfth year's course of study), no institutions of higher education being included, although the State universities are supported from public funds. Nearly all of the common schools throughout the United States are supported entirely by public taxation and the proceeds of the school funds. In a few instances these public funds are eked out by small tuition fees paid by the parents.

The first of the following tables gives a condensed summary of the common school statistics compiled from the data furnished this office by the State superintendents. The increase in pupils over last year is 273,414. The table shows the comparative items for nearly three decades. In 27 years the enrollment in the common schools has increased from about seven and one-half millions to fourteen and two-thirds millions. The proportion of the population enrolled in the common schools has also increased from 19 per cent to over 20½ per cent. This fact is to be accounted for by the increase in the growth of cities. An urban population provides more generously for the schooling of its people. But the effect of the urban growth is seen more fully in the increase of the average length of the school term in days. While in 1870 it was 132 days for the entire United States, in 1897 it had increased to 140.4 days, and while there was an average of 49 days for each person of school age (5 to 18 years) in 1870, in 1897 the average had risen to 67 days.

In the second table, showing general financial statistics, it is seen that the public schools, including elementary schools and high schools, received for their support during the year 1896–97 the sum of $188,641,243. This is an increase of a little more than $7,000,000 over the previous year. But it will be seen that while the expenses in 1870 amounted to $1.75 per day, in 1896–97 the amount was $2.62 on the average for each inhabitant, and this for the pupils who actually attended school amounted to $18.57 in the year 1896–97, while it amounted to $15.20 in the year 1870–71. This addition to the cost of tuition is partly due to the increased number of days in which the pupils actually attend school, and partly due to the increased amount paid for salaries of teachers, improved school buildings and apparatus. Each pupil

III.—*Total number of pupils and students of all grades in both public and private schools and colleges, 1896-97.*

NOTE.—The classification of States made use of in the following table is the same as that adopted by the United States census, and is as follows: *North Atlantic Division:* Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania. *South Atlantic Division:* Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida. *South Central Division:* Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas, and Oklahoma. *North Central Division:* Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. *Western Division:* Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California.

Division.	Pupils receiving elementary instruction (primary and grammar grades).		Pupils receiving secondary instruction (high-school grade).*a*		Students receiving higher instruction.								
					In universities and colleges. *c*			In schools of medicine, law, and theology. *e*			In normal schools. *g*		
	Public.	Private (largely estimated).	Public. *b*	Private (in preparatory schools, academies, seminaries, etc.).	Public. *d*	Private.	Total.	Public. *f*	Private.	Total.	Public.	Private. *h*	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
The United States	14,243,069	1,209,367	420,459	164,445	27,654	69,480	97,134	7,706	45,543	53,249	43,199	24,181	*i* 67,380
North Atlantic Division	3,418,765	503,832	129,118	49,817	4,781	25,498	30,279	233	17,367	17,600	17,651	2,247	19,898
South Atlantic Division	2,049,766	88,310	21,450	24,487	3,489	9,872	13,361	687	5,911	6,598	3,743	1,817	5,560
South Central Division	2,605,294	145,041	31,385	31,805	2,652	11,234	13,886	946	4,546	5,492	3,016	4,500	7,516
North Central Division	5,376,918	430,120	214,291	49,852	13,009	20,158	33,257	5,107	16,420	21,527	15,818	14,817	30,635
Western Division	792,316	42,064	24,215	8,484	3,633	2,718	6,351	733	1,299	2,032	2,971	800	3,771

a Including pupils in preparatory or academic departments of higher institutions, public and private, and excluding elementary pupils, who are classed in columns 2 and 3. A classification of public and of private secondary students, according to the character of the institutions in which they are found, is given in Chap. XL, Vol. 2.

b This is made up from the returns of individual high schools to the Bureau, and is somewhat too small, as there are many secondary pupils outside the completely organized high schools whom there are no means of enumerating.

c Including colleges for women, agricultural and mechanical (land-grant) colleges, and scientific schools. Students in law, theological, and medical departments are excluded, being tabulated in columns 9-11. Students in academic and preparatory departments are also excluded, being tabulated in columns 4 and 5.

d Mainly State universities and agricultural and mechanical colleges.

e Including schools of dentistry, pharmacy, and veterinary medicine.

f Mainly in schools or departments of medicine and law attached to State universities.

g Nonprofessional pupils in normal schools are included in columns 4 and 5.

h Private normal schools are, with few exceptions, scarcely superior to the ordinary secondary schools.

i There are, in addition to this number, 22,554 students taking normal courses in universities, colleges, and public and private high schools. (See Chap. XXXIX, Vol. 2.)

IV.—Total number of pupils and students of all grades in both public and private schools, 1896–97—Continued.

Division.	Summary of higher (including normal) instruction.		Summary of pupils by grade.			Summary according to control.		Grand total.
	Public.	Private.	Elementary.	Secondary.	Higher.	Public.	Private.	
1	15	16	17	18	19	20	21	22
The United States	78,559	139,204	15,452,426	584,904	217,703	14,742,077	1,513,016	16,255,093
North Atlantic Division	22,665	45,112	3,922,597	178,935	67,777	3,570,548	598,761	4,169,309
South Atlantic Division	7,919	17,600	2,138,076	45,937	25,519	2,079,135	130,397	2,209,532
South Central Division	6,614	20,280	2,840,335	63,190	26,894	2,733,293	197,126	2,930,419
North Central Division	34,024	51,395	5,807,088	264,143	85,419	5,625,253	531,367	6,156,620
Western Division	7,337	4,817	744,380	32,699	12,154	733,868	55,365	789,233

CITY SCHOOL SYSTEMS.

As shown above, the enrollment in the State common schools for 1896–97 was 14,652,492. This includes the enrollment in the public schools of the 578 cities of 8,000 population and over. In these cities the number of pupils enrolled was 3,590,875, or 24.50 per cent of the common-school enrollment for the United States. There was an increase of 106,620, or 3.06 per cent, in the enrollment in the public schools of cities in 1896–97 over the previous year, while there was a decrease of 24,151, or 2.85 per cent, in the estimated enrollment in private and parochial schools. The enrollment in these private schools in cities, as reported to the office by city superintendents, was 824,609.

The average daily attendance in the city public schools was 2,687,758, an increase of about 5 per cent over the preceding year. The number of supervising officers in the city systems was 3,859 and the number of teachers 74,117, an increase of 5.39 per cent in the number of teachers. The number of buildings used for school purposes was 8,604, while the number of sittings was 3,397,275, an increase of less than 1 per cent over the previous year. The expenditure for teaching and supervision aggregated $48,772,485, an increase of 4.33 per cent, while the total expenditure was $84,866,092, an increase of $4,823,974, or 6.03 per cent, over the amount expended in 1895–96.

The urban population in 1870 was almost 21 per cent of the whole, but in 1890 it had risen to nearly 30 per cent.

AVERAGE AMOUNT OF SCHOOLING PER INHABITANT.

In reply to the question, How much schooling is each inhabitant receiving on the basis of the present attendance? I drew up two tables some years ago which I have reprinted with additions from time to time. If the conditions existing in the year 1896–97 were continued indefinitely, what would be the average amount of schooling per individual, counting it in school years of two hundred days each? I find that if we include public and private schools and higher education as well as elementary and secondary, the amount that each inhabitant would receive is 4.94 years. Table V shows that the divisions of the United States differ very much, the lowest average being 2.83 years, and the highest average being 6.50 years. The results are shown in comparative form beginning with 1870. In Table VI the average amount of schooling in the public schools alone is shown, omitting the private schools.

V.—*Average total amount of schooling (including all grades of both public and private schools) each individual of the population would receive under the conditions actually existing at the different dates given below.*

[Expressed in years of 200 school days each.]

	1870.	1880.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
United States	3.33	3.59	4.41	4.51	4.41	4.48	4.63	4.75	4.84	4.94
North Atlantic Division	4.98	5.77	5.94	6.04	6.08	6.09	6.32	6.54	6.48	6.50
South Atlantic Division	1.20	2.13	2.68	2.72	2.68	2.73	2.90	2.85	2.98	3.08
South Central Division	1.09	1.81	2.48	2.60	2.62	2.58	2.88	2.88	2.79	2.88
North Central Division	4.09	4.75	5.28	5.37	5.14	5.30	5.30	5.46	5.75	5.90
Western Division	3.46	4.06	4.44	4.65	5.00	4.83	4.92	5.21	5.46	5.54

VI.—*Average total amount of schooling received per inhabitant, considering only public elementary and secondary schools.*

[Expressed in years of 200 school days each.]

	1870.	1880.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
United States	2.91	3.45	3.85	3.93	3.97	3.99	4.13	4.24	4.28	4.37
North Atlantic Division	4.43	4.84	4.99	5.08	5.10	5.10	5.28	5.50	5.61	5.61
South Atlantic Division	0.80	1.90	2.42	2.46	2.46	2.51	2.70	2.66	2.67	2.78
South Central Division	0.78	1.57	2.20	2.31	2.41	2.39	2.64	2.65	2.45	2.49
North Central Division	3.71	4.19	4.67	4.74	4.75	4.84	4.85	5.00	5.16	5.29
Western Division	2.77	3.57	3.98	4.16	4.46	4.39	4.49	4.76	4.95	5.02

Education in Great Britain and Ireland.—The statistics of education in Great Britain presented in Chapter I show a vast development of the system of elementary schools. Since the passage of the education law of 1870, which applied to England and Wales, the school enrollment in this division of the Kingdom has increased by 226 per cent, while the increase in population has been only 39 per cent. The improved condition of the schools is illustrated by the relative increase in average attendance; in 1874 it was 67 per cent of the enrollment; in 1896 it had risen to 81 per cent. The change in the composition of the teaching force is an additional sign of improvement. Pupil teachers, who formed the majority of the teaching force in 1874, were but 29 per cent of the total in 1896.

In Scotland, whose schools are administered under the law of 1872, there was much less room for improvement, as education had long been a general interest. In that country, however, the law, by giving formal organization and Government support to the work, facilitated its growth. The statistical survey of Scotland carried back over a period of sixteen years shows an increase of 33 per cent in enrollment as against an increase of 13 per cent in the population. The average attendance, which in 1880 was 78 per cent of the enrollment, had risen in 1896 to 81 per cent. The decrease in the number of pupil teachers during the same time has also been marked. From 44 per cent of the total in 1880 they fell to 26 per cent in 1896.

The withdrawal of the English education bill of 1896, whose scope

and fate were considered in my previous report, proved to be final, and no further attempt has been made to reorganize the system as a whole. A new bill for the relief of voluntary schools (private schools, chiefly denominational) was presented upon the reassembling of Parliament in 1897 and was passed. It places an additional grant from the public treasury, amounting for the current year to $3,000,000, at the disposal of parochial schools without any provision for public control, and also relieves their property from taxation. The bill was opposed by the Liberals and regarded with disfavor by many Conservatives as establishing a dangerous precedent with respect to the application of public money, and further, as introducing the principle of special legislation into the school system. Immediately a second bill was introduced and passed for the relief of board schools in poor districts. It proposed an appropriation ($553,000) for this object, and is chiefly noteworthy as continuing the policy of special legislation.

The law for the relief of parochial schools provides for the federation of schools and the allotment of the due proportion of the relief grant to the governing body of the federation. The provision, it was felt, would greatly increase the ecclesiastical influence in school matters, and such appears to be its outcome.

The text of the law, the grounds on which it is supported, and the opposition it has excited are considered fully in Chapter I. Its bearing is shown more clearly by a review of the successive laws and official regulations by which the present system has been developed. On the whole, it would appear that the recent legislation has increased rather than allayed the causes of friction in the school system.

The survey of elementary education in London which completes the chapter gives emphasis to the action of local authority in the English system. The London school board has vast powers as well as onerous duties. It deals with a population of 4,500,000. In 1870 the only school accommodation was in parochial and other private schools and sufficed for about half the school population. The London board, created under the law of 1870, had not only to make up the deficiency, but to keep pace with the ever-growing child population, which has increased by 45 per cent since that date. This task has been accomplished. In London, as in most of the English cities, the board schools have outstripped the parochial in number and efficiency, providing for 66 per cent of the school population as against a ratio of 48 per cent for the board schools of the country at large. Certain of the private elementary schools, however, rank very high and offer important suggestions as to the means of meeting the wants of the poorest class. This is particularly true of the Jews' free school. In all the board schools, tuition, school books, and other appliances are free. The expenditure amounted to $11,700,000 in 1896, or a gross cost per capita of average attendance of $19.54. The rate, which is regarded as enormous by critics of the schools, is below the average

per capita in cities of the United States. The return of a progressive board at the late election assures the continuance of a generous policy.

The provision for dealing with truant children and the development of evening schools are important features of the policy of the board.

In the provision of higher-grade board schools London has done less than Manchester, Sheffield, and several other cities. There are, however, many private and corporate agencies in the metropolis engaged in providing secondary and technical instruction for the people. Their nature and work are briefly treated in the chapter considered.

Education in France.—The principal event in the current history of education in France presented in Chapter II is the transformation of the State faculties into autonomous universities by a law of 1896. The law is the culmination of a series of measures dating back to 1885. The universities are not thereby freed entirely from the control of the Government. This is still maintained in respect to the appointment of professors and the requirements for degrees, which are in fact State titles, carrying professional and official privileges. Nor are the universities deprived of State appropriations, from which in fact their income is chiefly derived. The university councils will, however, have control of the fees, excepting those incurred in respect to degrees, of the university property and the adjustment of the internal affairs. It is certain that local effort will be greatly stimulated by the new relations.

The universities that have their seats in the great centers of commerce and industry naturally enter upon the new order with great confidence; for the smaller universities, the hope is expressed that they will specialize according to the wants or interests of the region—technical, historical, or philological, as the case may be—and thus become strong by force of important specialties.

The increase of attendance in church schools of "secondary" grade excites interest in view of the fact that the enrollment in the State lycées and local public colleges has remained stationary for several years. The "secondary" schools include lycées and communal colleges and correspond, not to our high schools, but to the gymnasia of Germany. Their course covers two years of our college work. They are the schools of liberal culture and their graduates exercise an immense influence, hence the State desires to maintain its ascendancy in this department. It appears that, while in respect to attendance the status of the national schools is not entirely satisfactory, they contribute a much larger proportion of students to the special schools of high order than the rival institutions. This is an important matter, as the graduates of the special schools enter into the most influential posts in the public service.

The law of 1893 respecting the salaries of primary teachers, which

went into effect the present year, improves somewhat the average condition of the teachers.

The superior primary schools of France, corresponding to high schools in this country, have had remarkable growth under the combined efforts of the Government and local authorities, and offer very important lessons in the organization and varying adaptations of schools of this class. Their scope and work are set forth very fully in this chapter. The continued and successful efforts for adult education are also noted. A paper translated from M. Boutmy on the reform of the baccalaureate, and the address of M. Bréal before the "Association for the Encouragement of Greek Studies" on the genius of the Greek language, complete the survey of education in France.

Education in Norway and Denmark.—The general trend of education in Norway and Denmark, as well as in Sweden, is toward the adoption of urban improvements in the schools. Villages are growing into cities, and new villages are beginning in the rural sections. The ambulatory school (in which the teacher taught from house to house), formerly a necessity in the thinly settled regions of these countries, is being replaced by the village and city school, with its centralization of effort.

The youth of the rural section gravitates to the city, where he can find better advantages not only in the school, but in the shop of the manufacturer or the merchant. For new inventions in the way of machinery are making it possible to produce the raw material of food and clothing by means of fewer laborers; hence the rural regions, where the raw material is produced, are relatively decreasing in population, the surplus of laborers set free by machinery removing to villages and engaging in manufactures, commerce, and transportation. Fewer people being needed for the production of raw material, more people are available for finishing goods and for the production of articles of luxury and creature comfort. More people are available, too, for the higher occupations, that deal with the protection of man and provide for his culture. The census from decade to decade shows in civilized countries an increase of people engaged in the collection and diffusion of information; engaged in scientific discovery, in the work of teaching, and in benevolent and religious enterprises. The protective employments, including first those engaged for the protection of the health of the community, increase, and we have more physicians, more experts in various kinds of diseases, and more persons engaged in the scientific investigation of the causes and prevention of pestilent epidemics, and also chronic diseases that arise from malaria; more persons are engaged in the protection of property, not only the class of lawyers, but insurance agents of many kinds. It is the most comforting reflection that comes to us in this age of progress, namely, that nature is being subdued for the uses of man and man himself stimulated to fit himself for a higher range of employ-

ments than those which deal with the collecting of raw material and the first rude appliances of manufacturing. The financial statistics of civilized countries show a rapid increase in productive power. While some, mostly rural countries, such as Russia, Austria, and Italy, produce from 11 to 20 cents a day for each inhabitant, countries in which the urban industries are very prominent, as in France, Belgium, England, and the United States, produce from 40 to 50 cents a day for each inhabitant. Hence it happens that in England three families out of ten receive an annual income of $1,000 and upwards. The population of France does equally well; and, as in Great Britain and France productive industry finds its highest realization, articles of human comfort, protection, and culture are cheapest there and within the means of the laboring classes.

In the Scandinavian countries the influence of this struggle to conquer nature by machinery and elevate the employments of men is beginning to be felt. Denmark leads and Sweden follows. Norway follows at a greater distance, but with an assured progress. The educational statistics from year to year from these countries prove that more attention is paid to the development of mechanical skill among the people. At first the sloyd and other industrial schools did not show the marked influence of æsthetic studies. Later, however, the examples of France and Belgium have had their influence, and more attention is being paid to the cultivation of taste as the chief factor in enhancing the value of productions.

In Chapters III and IV of this report many details are given showing the progress in those countries in the establishment of manual training and in the coeducation of men and women in the universities; the improved facilities for the professional education of teachers; the increase of pupils in the technical studies and in modern languages, and in general the larger appropriations for the support of schools.

Education in central Europe.—Chapter V of the report contains a translation of Mr. H. Scherer's review of educational currents of thought in Europe in 1895. His article indicates the increased attention that is paid to psychology, and more especially to sociology. Up to within a few years the principle of individualism as enounced by Rousseau prevailed, and the social whole was considered an accident of human nature rather than its substance. It is likely that the reaction which is now bringing more and more theoretical emphasis upon social organization will go too far, and that it will lay too much stress upon the institutional life of the human being, but this danger does not threaten us at present. There is so much ground to be covered before the dangerous individualism of Rousseau is corrected that we are not likely to see the triumph of the principles of socialism and communism in the present generation. Mr. Scherer has well indicated the importance of studying education from the standpoint of the civilization of the time. What Germans call Kultur-Geschichte

is the basis of intelligent study of all institutions of society, and especially of the system of education. One of the first fruits of this study of education from the standpoint of social science is the attention given to the weaklings in society, whether the weaklings in intellect, or in thrift, or in morals. The paupers, criminals, and insane are recruited from these classes. Statesmanship now gives more attention to the causes of crime and to its cure, while formerly it paid attention only to its punishment. Special schools for children of limited mental capacity is the second topic in the fifth chapter. It discusses a report based upon statistics published by the Prussian minister of education, which offers a comparison between the condition of these schools in 1892 and their condition in 1896. It is now seen clearly that there should be a medical examination of school children in all schools, and that the diagnosis of the child should in many cases furnish hints for the school programme to which he is assigned. The increase of secondary schools in Prussia is noteworthy, but still more noteworthy is the instruction now given in Germany with reference to the trades and arts. Germany, before all other nations, strives to govern its national housekeeping by the systematic results of intelligence. The Government, for instance, discovers that its people do not consume as much sugar per inhabitant as more favored commercial countries, such as England and France, and yet, having a northern climate, it should have the benefit of the more carbon which the sugar furnishes. It finds that the world is depending on the inhabitants of the tropics for the production of this article. Why should not some method be adopted by which people in the temperate zone, people living in Saxony and Prussia, for example, can produce their own sugar? A commission appointed on this subject discovers that the most available plant for this purpose is the beet. The Government at once stimulates beet-root raising by offering bounties on the sugar that is exported from the country. To the astonishment of the world, in a few years the beet-root sugar of the world exceeds the cane sugar in the ratio of 9 to 7; 4,500,000 tons of beet-root sugar, 3,500,000 tons of cane sugar. The old motto, "Perseverance conquers all things," shall read, "Rational insight conquers all things." Again, Germany sees that its own national quota from productive industry is not much more than one-half as much per inhabitant as the production of Great Britain and France. To be the strongest nation it is requisite to be the richest nation. The production of raw material in great amounts does not suffice to make a rich people. The greatest agricultural countries, namely, southern Russia, the South American States, the prairies of the Mississippi Valley, do not produce wealth like the cities of England and France and the Atlantic coast of the United States. Nor are the countries which have only manufactures besides agriculture the richest peoples; it is also requisite to have a certain quota of the people engaged in commerce. Since

1875 Germany has been the theater of the most wonderful transformation in this matter of manufactures and commerce that the world has ever seen. Its progress is felt by all rival nations. It would seem that Germany is the pedagogic nation, the educator of the world, not only in schools, but in the organization of armies, the conduct of wars, also in the development of manufactures, the division of labor among its people, and in the building up of a commerce. Other nations finding out what Germany is doing will adopt the same methods, and a progress initiated throughout the civilized world will produce rapid changes for the better. At the rates of progress going on during the thirty years from 1850 to 1880 the United States might produce a dollar a day for each man, woman, and child by Anno Domini 1950, but the progress in the decade from 1880 to 1890 was much more rapid than this. The tendency of the introduction of machinery to aid the hand laborer is to increase by the geometrical ratio rather than arithmetical ratio.

In the fifth chapter, also, there is a discussion relating to the proportion of Catholics, Protestants, and Jews in the secondary schools of Germany. The data are given and interesting deductions drawn by Professor Von Mayr. The American teacher will be greatly interested to read the judicious remarks of Dr. Ernst Schlee on the recent movements of education in the United States; also the views of Dr. Otto W. Beyer on the report of the English Royal Commission on secondary education.

Commercial education.—In Chapter VI a brief but comprehensive statement of what is done for commercial education in a large number of European countries is given. The German movement, already alluded to, has probably stimulated the effort which is going on in many countries in the way of improving the quality of commercial education. These schools not only teach penmanship, bookkeeping and arithmetic, typewriting, telegraphy, and banking, but they take up commercial law, and the manners and customs of foreign commercial agencies, the method of preparing goods for foreign markets, the history and social status of foreign countries. In the report of this Bureau for 1895–96 a remarkable article on commercial schools in Europe, prepared by Prof. E. J. James for the American Bankers' Association, is given in Chapter XV, pp. 721–837. That report shows how the students of the commercial school are set to work studying the raw materials of industry in a comparative manner, learning the good and bad features of those productions in each quarter of the world, learning how they are produced and prepared for market. Further studies are prescribed in which the entire process of manufacture is entered upon, and also the method of preparing for market, transportation, and final distribution to the consumer. Such schools as these produce commercial directive power. It must be admitted, however, that the methods which the Germans have originated and

put into application have not yet been intelligently reported upon for the benefit of foreign nations.

The study of civics.—In Chapter VII an account of the methods adopted in Switzerland and France to teach the youth of those two Republics the duties of citizenship is given. It seems that while the Swiss reserve this study for pupils of supplementary or continuation schools—that is to say, pupils in the seventh to the fourteenth years of the course of study—on the other hand the French attempt to introduce this material as a regular study into the elementary schools. The great fertility of the French mind in inventing devices for instruction appears in the text-books and programmes of this course of civic study. Above all peoples the French understand how to make things talk. They can make objects instruct the youth automatically. They know best how to reduce the material of education to what I have called a "pedagogic form." Having settled upon the subject-matter which the pupil should learn, it is necessary to arrange this in such an order that the simplest comes first and that the earlier steps assist in the mastery of the later steps. It is very important, too, in obtaining the pedagogical form to insist on the arrangement of the matter in such a way that the first steps are valuable in and for themselves if not followed by any later steps. It is a badly arranged course of study if some branches derive their entire usefulness from what is to succeed them. For the pupil in this case wastes all his time spent on these branches if he leaves school before arriving at the later steps which give value to the early steps. The teaching of mathematics and language has been so long in the course of development that its branches in the course of study have attained a nearly perfect pedagogical form. This is not yet the case in natural science and still less is it the case in the branches of industrial training. But the wise teacher will do well to study carefully the methods adopted in the French schools in order to find the best yet attained in pedagogical form.

Education in Greece.—In Chapter VIII a valuable paper is submitted on education in Greece. A brief sketch is given of the civilization of the Greeks, particularly of the Ionian branch. Greece continues to be of interest to the world because of the fact that it has furnished one of the three great contributions to civilization. The scientific turn of mind and the forms of art and literature all come from Greece, while the forms of law which enumerate the rights of person and property come from Rome. The view of the world which forms the deepest and most influential element in our civilization comes from Judea. The study of Greek art and literature looks for its illustrations to the ancient Grecian home in the present age even more than it has done in preceding centuries. One investigator, Schliemann, has wrought a considerable change in the method of classic study. The results of archæology, as pursued in Germany from the time of Winckelmann to the present, have wrought as great

a change in another part of classical study. The modern Greek, whether a lineal descendant or a descendant by adoption from the ancient Greek, can not choose but share in the warm interest of all western peoples who participate in the heritage of culture which comes to them from ancient Greece.

Sunday schools.—In Chapter IX is to be found an elaborate article on the subject of the Sunday school. While the education of the American people supported by taxes and public funds is becoming more and more rigidly secular in character and the lines drawn more closely which separate it from ecclesiastical and religious instruction, yet the true importance of religious instruction is coming to be better understood among scientific and philosophical thinkers. The secular institutions of man are organized as the family, civil society and the state. These provide for education, the procurement of the necessities of life, and the establishment of justice. But all of these presuppose a deeper ground in the ideal of the origin and destiny of man and nature. They involve a world view, and religion furnishes and must furnish a world view. Hence all people, whether connected with one or another denomination of Christians, or whether holding a religion other than Christian or holding no conscious religion at all, must admit the importance of the religious instruction of the community. More than anything else the Sunday school has contributed to the sustenance of the church.

With the spectacle of the systematic organization of the secular schools and the improvement of methods of teaching before them, the leaders in the church have endeavored to perfect the methods of the religious instruction of youth. They have met the following dangers which lay in their path, namely: First, the danger of adopting methods of instruction in religion which were fit and proper only for secular instruction; secondly, the selection of religious matter for the course of study which did not lead in a most direct manner toward vital religion, although it would readily take on a pedagogic form.

The secular school gives positive instruction. It teaches mathematics, natural science, history, and language. Knowledge of the facts can be precise and accurate, and a similar knowledge of the principles can be arrived at. The self-activity of the pupil is before all things demanded by the teacher of the secular school. The pupil must not take things on authority, but must test and verify what he has been told by his own activity. He must trace out the mathematical demonstrations and see their necessity. He must learn the method of investigating facts in the several provinces of science and history. The spirit of the secular school therefore comes to be an enlightening one, although not of the highest order. But its enlightenment tends to make trust in authority more and more difficult for the young mind.

On the other hand religion, which gives the net result of the wisdom

of the race in the form of authority, omits and must omit the long lines of proof which have established it. The experience of thousands of years shrinks to a mere point, and is stated in the dogmas which seem to be immediate spiritual facts resting on external authority, the substructures of thousands of years being almost entirely concealed. Not only are these long periods of experience kept out of sight, but also the vast labors of religious thinkers who have grappled with psychology and philosophy and assisted in making the religious results systematic and without contradiction. Religious education, it is obvious, in giving the highest results of thought and life to the young, must cling to the form of authority, and not attempt to borrow the methods of mathematics, science, and history from the secular school. Such borrowing will result only in giving the young people an overweening confidence in the finality of their own immature judgments. They will become conceited and shallow-minded. It is well that the child should trust his own intellect in dealing with the multiplication table and the rule of three. It is well that he should learn the rules and all the exceptions in Latin syntax and verify them in the classic authors, but he must not be permitted to summon before him the dogmas of religion and form pert conclusions regarding their rationality.

Against this danger of sapping or undermining all authority in religion by the introduction of the methods of the secular school which lay all stress on the self-activity of the child, the Sunday school has not been sufficiently protected in the more recent years of its history. Large numbers of religious teachers, most intelligent and zealous in their piety, seek a more and more perfect adoption of the secular school methods.

On the other hand, the topics of religious instruction have been determined largely by the necessities of the secular school method. That method is not adapted to teach mystic truth. It seeks everywhere definite and especially mathematical results. But these results, although they are found everywhere in science and mathematics, are the farthest possible from being like the subject-matter of religion. Hence it has happened that in improving the methods of the Sunday school greater and greater attention has been paid to the history and geography of the Old Testament and less and less to the doctrinal matters of the New Testament. In Chapter IX the specialist has brought together a great amount of material relating to the statistics of the Sunday schools and also to the methods of instruction. The statistics given, although not of the precise character which can be obtained regarding secular instruction, are yet nearly enough accurate for all purposes.

Land-grant colleges.—Chapter X is practically a symposium upon the important question, "What shall the land-grant colleges teach?" In November, 1894, a committee of the Association of American

Agricultural Colleges and Experiment Stations reported upon the preparation such colleges should demand from applicants for admission. The committee, while urging the necessity of establishing a standard that each college should maintain in order to protect the value of the degrees the land-grant colleges confer, recognized that some colleges are not in a position to do more than make a beginning toward attaining to the standard which the committee deemed desirable should be eventually established. The papers by Presidents Stubbs, White, and Murkland, and by Director Jordan form an interesting and valuable discussion of the matters which should be taught in the land-grant colleges, and the pedagogical spirit which should animate those who are conducting them.

Colleges and universities—Entrance examinations.—The requirements for admission to the freshman class of the various courses of study in 475 universities, colleges, and schools of technology are given in Chapter XI. An examination of the requirements of the several institutions and of the summarized statements preceding the detailed table will show that there is at present a great diversity in such requirements, ranging from a knowledge of reading, writing, spelling, arithmetic, geography, and history up to the requirements demanded by Harvard University. Various organizations throughout the country are at present engaged in a movement for the adoption of uniform entrance requirements. Short accounts of some of these organizations and what has been accomplished by them in this direction are also given in this chapter. Attention is especially directed to the work of the Commission of Colleges in New England on Admission Examinations, which has been engaged on this subject since 1886.

The right of the State to educate.—In Chapter XII will be found a number of decisions by the higher courts of the several States confirming the right of society to educate the citizens of the next generation. It would appear that the courts of law have maintained that it is the right and duty of the legislature to care for the public intelligence as well as for the public health and security, and have further regarded it as a constitutional requirement to refuse to recognize any efforts which tend to establishing two or more antagonistic societies within the same State.

Educational psychology.—Chapter XIII continues the survey of psychological movements maintained in previous reports. The subject is considered in its relation to education and especially as fostered in this country by school officials and teachers.

Under the impulse imparted by Professor Royce, of Harvard, and Professor Baldwin, of Princeton, imitation has occupied the attention of many groups of investigators. A summary of opinions and of data relating to this topic is presented in the chapter followed by a report on the "Imitative functions in childhood as related to the process of learning" from the committee on psychological inquiry of

the National Council of Education. Citations from a preliminary report on the subject by Professor Royce, and extracts from a paper by Mr. E. H. Russell, principal of the Worcester Normal School, setting forth the methods, aims and spirit of observations on childhood as conducted in that institution, complete the chapter.

Gen. Francis A. Walker.—The educational profession in the United States has lost one of its most distinguished members in the person of Gen. Francis A. Walker. His public services to the nation as soldier and as head of the Federal Census Bureau, his labors in the International Statistical Society, over which he presided at its meeting in Chicago in 1893, his many writings upon those topics in education that deal with its pathology—these labors had made him known throughout the world of science and education. To the pathology of education he had contributed most thoughtful suggestions regarding the influence of manual training, and studies upon the methods of curing arrested development in peculiar cases of backward pupils, or pupils who had gained the reputation for dullness or obtusity in mind. Extracts from some of these papers giving his point of view as to the relation of manual training to certain mental defects, the place of college athletics, the extension of technical training, are found at the close of Chapter XIV.

It is hoped that these and other similar papers of General Walker will be collected in a volume by themselves, inasmuch as such a volume would take its place at once in the most select list of educational classics.

Report of the Committee of Twelve on rural schools.—During the past five years three remarkable committees have been appointed through the agency of the National Educational Association and a considerable sum of money placed at the disposal of each to conduct investigations and provide for conference meetings of the committee. First, there was the Report of the Committee of Ten, under the chairmanship of President Eliot, of Harvard College, which discussed the question of the course of study in preparatory schools, laying down certain programmes for secondary schools engaged in the work of fitting students for the college or the school of technology. This report was enriched by the contributions from nine subcommittees, representing the labors of ninety experts. The second national committee, known by the name of the Committee of Fifteen, discussed methods of organization and supervision of city school systems, the normal school preparation of teachers for the elementary schools, and the course of study at present existing in the elementary schools, together with suggestions for its modification.

The third national committee, called the Committee of Twelve on Rural Schools, published the results of its two years' labors in June, 1897. To this report there were nineteen valuable appendices. The entire report without appendices is to be found in Chapter XVII. (These reports can be obtained for small prices from the secretary of

the National Educational Association, Prof. Irwin Shepard, Winona, Minn.)

Engineering schools, entrance examinations to engineering colleges.—In Chapter XI the entrance examinations to the academic departments of the several colleges and universities of the United States are given. In Chapter XVIII are found the entrance requirements to engineering colleges.

Early history of the kindergarten in St. Louis, Mo.—Chapter XIX contains a reprint from the Annual Report of the St. Louis Public Schools, 1878–79, of a discussion of the philosophy of the kindergarten, and also a history of the adoption and growth of the kindergarten system in that city, together with quotations from the lectures of Miss Susan E. Blow on "The gifts and occupations of Froebel."

Contributions to the curriculum of the land-grant colleges.—The remarkable discoveries in biology which have characterized the last half of this century have completely revolutionized the ideas concerning vegetable nutrition and instinct. In Chapter XX certain facts which illustrate the discussions in the higher classes of colleges of agriculture are collated, especially with the view of showing the source of fertility in agricultural work and the economic value of coöperation in agricultural communities. The chapter also contains much data regarding the progress recently made in metallurgy and in mining operations.

Tennessee Centennial Exposition.—The agent in charge of the exhibit of the Bureau of Education at the Tennessee Centennial Exposition, held at Nashville in the summer of 1897, makes a report on the Exposition, and, in view of the educational importance of the Exposition, and especially of one of its features, the reproduction of the Parthenon[1] of the Acropolis at Athens, in the full dimensions of the original, devotes considerable space to the history and significance of this work of art. At present more and more attention is being given in the schools of civilized peoples to the training of pupils in æsthetic taste. Those nations, other things being equal, are the richest that give their goods a beautiful finish and that introduce tasteful ornamentation. This accounts largely for the first rank held by France and Great Britain in the markets of the world.

Nothing else has been found so important in training the taste of youth as a study of the motives and composition of the Greek works of art. Greek art has made the presentation of gracefulness its chief aim. Gracefulness is the summit of the beautiful. Romantic or Christian art is rather a transition from art to a higher province, namely, that of religion, but its products are for this reason less eminent as works of art.

The Greek religion made beauty the essential feature of the idea of

[1] The fine model of the Parthenon, made by Chipiez for the Metropolitan Museum of New York Central Park, has been copied by Mr. Prang for schools, and his reproduction ought to be in every schoolroom.

the divine, and hence the art of Greece is intended as an act of worship of the beautiful. It represents the supreme attainment of the world in pure beauty, because it is pure beauty and nothing beyond. Christianity reaches beyond beauty to holiness. Other heathen religions fall short of the Greek ideal and lack an essential element which the Greek religion possessed. The Greeks believed that the divine is at the same time human, and human not in the sense that the essence of man, his purified intellect and will, is divine, but human in the corporeal sense. The gods of Olympus possess appetites and passions like men; they have bodies and live in a special place. They form a society or large patriarchal family. The manifestation of the divine is celestial beauty. Moreover, the human being may by becoming beautiful become divine. Hence the Greek religion centers about gymnastic games. These are the Olympian, the Isthmian, the Nemean, and the Pythian games. Exercises that shall give the soul sovereignty over the body and develop it into beauty are religious in this sense. Every village had its games for physical development. These were attended by the people, who became in time judges of perfection in human form, just as a community that attends frequent horse races produces men that know critically the good points of a horse. It was known who was the best man at wrestling, boxing, throwing the discus, the spear, or javelin; at running, at leaping, or at the chariot or horseback races. Then at less frequent intervals there was the contest at games between neighboring villages. The successful hero carried off the crown of wild olive branches. Nearly every year there was a great national assembly of Greeks, and a contest open to all. The Olympian festival at Olympia and the Isthmian festival near Corinth were held the same summer; then at Argolis, in the winter of the second year afterwards, was the Nemean festival; then the Pythian festival near Delphi, and a second Isthmian festival occurred in the spring of the third year; and again there was a second Nemean festival in the summer of the fourth year of the Olympiad. The entire people, composed of independent states, united by ties of religion, assembled to celebrate this faith in the beautiful and honor their successful youth. The results carried the national taste for the beautiful as seen in the human body to the highest degree.

The next step after the development of the personal work of art in the shape of beautiful youth, by means of the national games and the cultivation of the taste of the entire people through the spectacle of these games, was the art of sculpture, by which these forms of beauty, realized in the athletes and existing in the minds of the people as ideals of correct taste, were fixed in stone and set up in the temples for worship. Thus Greek art was born. The statues at first were of gods and demigods exclusively. Those which have come down to us cause our unbounded astonishment at their perfection of

form. It is not their resemblance to living bodies, not their anatomical exactness, that interests us, not their so-called "truth to nature," but their gracefulness and serenity—their "classic repose." Whether the statues represent gods and heroes in action or in sitting and reclining postures, there is this "repose," which means indwelling vital activity, and not mere rest as opposed to movement. In the greatest activity there is considerate purpose and perfect self-control manifested. The repose is of the soul, and not a physical repose. Even sitting and reclining figures—for example, the Theseus from the Parthenon, the torso of the Belvedere—are filled with activity, so that the repose is one of voluntary self-restraint and not the repose of the absence of vital energy. They are gracefulness itself.

The bearing of exhibits of Greek art on American industrial education is obvious.

One will concede at the start that tool work is valuable as industrial training, and that especially is this the case with the course of study and work in the manual-training school, because it teaches how to manufacture tools and machines of all kinds, and thereby gives the laborer that command over the instruments of industry which assists him very much in his struggle for excellence in the fields of labor.

Still more valuable must we regard the study of natural science, and especially of applied mathematics, in the laws of matter and motion. It furnishes the theory of all machinery and of all production of supplies from nature.

Besides this, we may claim that general education is of the utmost importance, opening as it does the powers of thought and observation, giving each laborer an insight into human nature and fitting him for logical thinking on all subjects; fitting him alike to lead others and combine them in extensive undertakings, and likewise to serve faithfully and intelligently other leaders when the case requires. This general education is indeed indispensable to the citizen and to the best quality of industrial laborers.

But æsthetic education—the cultivation of taste, the acquirement of knowledge on the subject of the origin of the idea of beauty (both its historic origin and the philosophical account of its source in human nature), the practice of producing the outlines of the beautiful by the arts of drawing, painting, and modeling, the criticism of works of art with a view to discover readily the causes of failure or of success in æsthetic effects—all these things, we must claim, form the true foundation of the highest success in the industries of any modern nation. The dynamic side is needed; but invention of the useful does not succeed in controlling the markets of the world. A nation with its laborers all educated in their taste for beautiful forms will give graceful shapes to their productions, and command higher prices for them. The graceful shape and the proper ornamentation charm the purchaser, and he willingly pays a higher price for the article of

usefulness if it is made by an artist than if it is made by a mere artisan.

Sweden is the leader in the manual-training movement, but her educators did not at first see the importance of developing correct taste among her laborers as a condition of industrial success. Accordingly, while ingenuity was increasing to some extent in that country, there was no improvement in the artistic finish and ornamentation of their goods. Other nations did not want ugly shapes in sight, and did not buy them. To have ugly utensils perpetually in view gradually works degeneration in one's taste. The figures of the commercial reports of that early day showed that we imported raw materials from Sweden, but did not buy their manufactures. In the official report of commerce and navigation of the United States for 1881 the imports from Sweden and Norway are reported as pig iron, $111,176; bar iron, $517,959; old and scrap iron, $114,883; total, $744,018. But of manufactures of iron and steel only $111,749 were reported. It is surprising to note that at that time we imported wood manufactures from them only to the small amount of $137, while we imported rags for paper manufacture to the amount of $39,090—but no manufactured clothing to speak of. The same year Belgium sent us wood manufactures to the value of $118,146, or nearly one thousand times the value of the same item from Sweden and Norway.

In 1851, at the World's Exposition in London, it became evident that English industries were not of such a character as to compete with those of France and Belgium. Prince Albert, always wise and thoughtful, set about a deep-reaching system of education that should correct the national defect and recover the prestige of British arts and manufactures. The South Kensington Museum was established, and day and evening art schools set up in all manufacturing centers. The museum placed at its foundation a collection of works showing the history of art, its beginnings, its high-water marks, and its fluctuations. On this basis instruction was given in those forms of ornamentation that the world has pronounced beautiful. There began from this time a gradual rise in the taste of the English workman; from being an artisan pure and simple he began to be an artist. England has gone forward rapidly in the direction of producing works of taste, and her useful manufactures, heretofore made without much reference to beauty, have steadily improved in tastefulness of design and execution.

The establishment of a great national art gallery, the Louvre, and the studies of French savants in the canons of good taste, had long before revolutionized French manufactures, and given France the supremacy in the world-market for goods that command high prices and ready sale.

Taking hint from England, we have had in this country something of a fever for education in art, especially in the lines of industrial drawing. Remarkable as has been our progress in the matter, yet

there is a prevalent lack of insight into the true direction and significance of this branch.

Federal aid to education.—The Federal Government, the several State governments, the churches, private beneficence, and business enterprise have all furnished important agencies in founding the several parts of the educational system of the country. Some years since this Bureau published a Circular of Information presenting the history of Federal and State aid to higher education in the United States.[1]

This circular of Dr. Blackmar has been out of print for some time. In view of the demand for information as to State and national aid to education, Chapter XXIII in the present report has been compiled, giving, in a condensed form, the amount of Federal and State aid for the establishment of higher education. This chapter requires to be supplemented by another, in which an attempt should be made to analyze the amounts reported to this Bureau since 1870 in such a way as to admit of a compilation showing the amount actually furnished from the State treasury for maintaining institutions for higher education considered apart from the income derived from the amounts given by the Federal and State governments for establishing higher education in the United States.

From the first grant to Tennessee, on its admission in 1796, up to the admission of the Dakotas, Montana, and Washington, Congress had granted about 20,000 square miles of lands to the several States specifically for the purpose of universities, or, as it was sometimes said, "seminaries of learning." Since 1889 not quite 3,260 square miles have been granted and the price fixed at $6,400 a square mile. The grants of land made previously to 1889 were either given by or followed as a precedent one of two acts, the first of which was an appendage to the ordinance of 1787 and the other the act of March 2, 1862. By the first of these acts, that of 1787, and its successor, about 20,000 square miles had been given and had been sold up to 1889 for $2,600 a square mile, on the average, in the aggregate amounting to $5,000,000. By the act of 1862 the States received 15,000 square miles, which they sold, on the average, for $704 a square mile—that is to say, they realized about $10,500,000. The matter may be stated in the following form:

	Square miles.	Realizing.
The lands granted by act of July 23 [2], 1787, and its successors in direct line up to 1889	20,000	$5,000,000
The lands granted by act of July 2, 1862, and its successors up to 1889	15,000	10,500,000
The lands granted by act admitting seven new States since 1889	3,260	20,864,000
The subsidy granted by act of August 30, 1890, capitalized at 4 per cent	.....	26,400,000
The subsidy granted by act of March 2, 1887, capitalized at 4 per cent	.....	18,000,000
Total given by United States to establish higher education	.....	80,764,000

[1] By Frank W. Blackmar, Ph. D., Circular No. 1, 1890.

[2] The university grant was not made in the ordinance of 1787 when passed July 13.

It is not possible at this date to state with the same general accuracy the amount that has been given by the States to establish higher education. But if we take what the institutions, aided by them, have accumulated in the way of value of buildings and apparatus it will give some idea of the aid afforded. The buildings and apparatus of these institutions (colleges and universities) amounted to $41,000,000 in 1896, about the same as Professor Blackmar gives for all the colleges and universities (345) in the United States ten years ago. The endowment of these institutions ("productive funds") is $51,673,000, but $30,000,000 of this belongs to Harvard, Yale, Columbia, and Cornell. In the chapter referred to above an itemized statement is given for each State. Professor Blackmar gives the endowment of all the colleges and universities in the United States in 1886 as $49,700,000.

Governmental control of learned professions.—The present year is noteworthy in the history of the medical and allied professions for the concerted action of European and some American governments in fixing standards for practice in the professions of dental and other surgery, and also in medicine in general. In Chapter XXV important data are brought together showing the progress made in the United States in this matter.

Eskimo vocabulary.—Chapter XXVII, Volume 2, is a reprint of "English-Eskimo and Eskimo-English Vocabularies," originally prepared by Mr. John W. Kelly, in charge of the whaling station at Point Barrow, and published by this office as a Circular of Information in 1890, now out of print. These vocabularies are probably the most complete that have been compiled, and are of especial value at the present time owing to the extraordinary impetus given to immigration into Alaska by the gold discoveries in that section.

Early education in North Carolina.—The beginning of the common school system in the South is traced in Chapter XXIX. To North Carolina belongs the honor of having been first of the fourteen Southern States east of the Mississippi to evolve a working system of common schools. This State is also conspicuous for the advanced position it occupied in matters of education in the constitution adopted in 1776, in the early chartering and opening of its State University, in the breadth of the educational thought shown by Archibald D. Murphey, the father of her common schools, and in the administrative ability of Rev. Calvin H. Wiley, her first general superintendent. This State, too, was alone among the Confederate States in keeping open her schools during the war. The gradual growth and development of her public system from its beginning in the report of Judge Murphey in 1817 and in the formation of the Literary Fund of 1825, are traced up to and through the war. As the success of this system was due very largely to the work of one man, the study has taken to a certain extent the form of a biography.

Geographical instruction in central Europe.—The report of this

office for 1892–93 (Volume 1, pp. 279–321) includes a chapter on the teaching of geography in Central Europe.

The subject is continued in Chapter XXXV, Volume 2 of the present report with special reference to Great Britain and France. For purposes of comparison, the matter is introduced by a brief epitome of a report on the subject by Dr. J. Scott Keltie, made to the council of the Royal Geographical Society in 1885.

Since that date, and partly as a result of the report, the study has received marked development in the countries considered, but their relative position in respect to it is practically the same. Germany still leads in the matter, although in respect to teaching appliances and to the development of the higher phases of geographical instruction, France is second to no country. Advance is noted in Great Britain, but not sufficient to bring her schools to the level of the continental schools in this respect.

Following the consideration of Dr. Keltie's report is an epitome of a recent report by M. Levasseur, the eminent statistician of France, upon the treatment of geography in the elementary and secondary schools and the universities of his own country. Reference is also made to the development of the subject in the Australian provinces and especially to the efforts of Mr. J. P. Thomson, of Brisbane, Queensland, to promote the study of geography, and by his researches and publications to increase the knowledge of the subject.

Consular reports on education.—Through the courtesy of the honorable the Secretary of State this Bureau has received many consular reports containing valuable information regarding education in foreign countries. Some extracts from these reports are collected in Chapter XXXI.

Education in Hawaii.—In Chapter XXXII the most recent information concerning education in Hawaii is furnished by General Eaton, former Commissioner of this Bureau.

Anthropology in child study.—Chapter XXXIV, Volume 2, contains an account of the growth of Toronto children, prepared by Prof. Franz Boas, of the American Museum of Natural History in New York. This paper represents the results of minute investigations on the school children of the city of Toronto, Canada, and the scientific treatment of the results obtained. Previously similar investigations at other places aimed at finding the influence of sex, occupation of parents, and descent; Professor Boas selected the influence of the order of birth, i. e., the question if first-born children have a development different from that of later-born children. The method of treating the results of such observations has largely been a comparison of averages and of the frequency of occurrence of averages between certain limits. The professor's account will be welcomed by anthropologists as a contribution to their special science.

Higher education.—The school year 1896–97 witnessed the suspen-

sion of twelve universities and colleges and the discontinuance of college work by three other institutions. This is recorded in Chapter XXXVI. The number of students pursuing liberal studies, that is, students enrolled in undergraduate and graduate departments, was 97,122, a decrease of 255 from the number reported in the preceding year. The number of such students reported by public institutions shows an increase of 1,358, thus proving that the decrease was in institutions not controlled by the States. The number of graduate students in attendance at our higher institutions is constantly increasing, the number of such students in 1896–97 having been 4,919, of which 1,413 were women. The total amount of money invested in universities, colleges, and schools of technology is $295,816,887. Of this amount $128,191,974 consists of endowment funds invested at an average rate of 4.8 per cent per annum. The benefactions to these institutions during the year amounted to $8,390,938.

Professional schools.—In the 157 theological schools mentioned in Chapter XXXVIII, there were 8,173 students, an increase of 156 over the number the previous year.

In the 77 law schools there were 10,449 students, of whom 3,106 were graduated during the year. As the number of law students in 1890 was 4,518, we see that the number was more than doubled in seven years, while the number of theological students increased by about one-eighth only in that period of time.

Medical students numbered 24,377, of whom 21,438 were enrolled in the regular schools of medicine, 2,038 in homeopathic schools, 789 in eclectic, and 112 in physiomedical. The number of students graduating in medicine during the year was 5,564. By comparing the ratio of graduates in medicine to the whole number of medical students with the ratio of graduates in law, it will be seen that much less time is required for completion of a course in law than in medicine.

The 48 dental schools had an attendance of 6,460 students, and the number of graduates was 1,640. Students of pharmacy numbered 3,426, a slight decrease from the previous year.

Normal schools.—For the school year 1896–97 there were in the various institutions reporting to this office 89,934 normal students, or students pursuing courses designed for the professional training of teachers, as shown in Chapter XXXIX. This was an increase of 5,534 over the previous year. These normal students were distributed as follows: In public normal schools, 43,199; in private normal schools, 24,181; in universities and colleges, 6,489; in public high schools, 9,001; in private high schools and academies, 7,064. The students here included are those who were actually pursuing teachers' training courses in these various institutions. Students in public and private normal schools pursuing other courses of study are accounted for in the chapter on Normal Schools, Volume 2. The 89,934 normal

If there be added to the 517,066 secondary students in public and private high schools and academies, the 51,690 secondary students in the preparatory departments of institutions of collegiate grade, the 12,730 secondary students in public and private normal schools, not normal students, and the 3,418 secondary students in manual-training schools, the grand total of secondary students in the United States reported to this Bureau is 584,904. It is a well known fact that there are in the elementary schools of nearly all the States many students pursuing secondary studies because high schools are not accessible. Could these scattering students be enumerated it is not improbable that the aggregate of secondary students would reach a figure considerably above 600,000.

Education in Alaska.—During the past two years by reason of the numerous discoveries of gold in Alaska that Territory has become an object of great interest. A school established at Circle City, on the upper Yukon, near the boundary between United States and British America, had a successful session during its first year, but on account of the removal of the inhabitants from Circle City to the region of the Klondike has lost nearly all of its pupils and has been closed for the present year. Large numbers of immigrants collected with their families at Dyea and Skagway seemed to demand accommodations for their children in school, but the present state of rapid change, not only of routes but of mining localities at the ends of those routes, makes it uncertain whether a school established for the children of the families of miners could have a longer term of existence than the one at Circle City, which seemed two years ago likely to become a permanent center for mining operations.

The missionaries representing the great bodies of Christian faith have thus far selected what may be called the strategical points for influence upon the native population of Alaska.

From the beginning, in 1885–86 on to 1893–94, it had been the policy of the Bureau of Education to subsidize mission schools in all places where it was not possible to establish Government day schools. The population of Indian villages is more or less nomadic, summering in camps on the seas and rivers at good fishing places, and wintering in their villages, located in more sheltered situations. The arrival of white immigrants has given a fixed character to these villages, in the southeast part of Alaska especially. In the southeastern region, in the presence of a larger or smaller contingent of white population, it has been found possible to establish Government schools and organize local school committees to supervise them. But in northern and western Alaska, villages with a nucleus of white population are not to be found, except at the ports of Unalaska and St. Michael; and in order to reach the natives successfully, it is necessary to avail one's self of the mission stations, 3 of which are located on the Arctic Ocean, 9 on the Bering Sea, and 7 in the river valley of the Yukon,

making a total of 19 missions with 61 missionaries. These mission stations have been located, in the light of a great deal of experience, at such places as furnish natural centers for the native population and at the same time afford the best facilities for communication with the United States in the short summer season. For the long winter season of eight to nine months no communication has been possible hitherto with northwestern Alaska.

In subsidizing the mission schools a certain minimum of school enrollment has been required, and a certain sum per pupil allowed, not to exceed in the aggregate a fixed sum agreed upon. The example of the Indian Bureau has been closely followed in this matter, except that where the Indian Bureau has allowed subsidies of $167 per annum this Bureau has allowed from $90 to $150 per pupil, boarded, clothed, and instructed, and $30 for day pupils. The maximum amount paid to contract schools appears in the year 1889–90, when the sum of $31,174.12 was paid. The largest item of that year was paid for industrial instruction and apparatus necessary to facilitate the same. In the year 1892–93 the action of Congress with regard to the Indian Bureau in the matter of contract schools was taken as indicating a policy to withdraw appropriations from contract schools, and for that reason the amount paid to contract schools in that year was reduced from $28,980 to $17,040—almost 40 per cent, and in 1893–94 it was further reduced to $8,000. In the year 1894–95 the subsidizing of contract schools was entirely discontinued, but in a few cases Government teachers were assigned to the mission stations.

The mission stations not only have the advantage of being located in important centers of the native population in the north and west, but they bring with them certain other advantages which the Government may use for its purposes of instructing the natives in the English language and in the arts of civilized life. In the first place, the mission station is a very effective center for the spread of the use of the English language among the natives, educating not only the children who come to its schools, but also the adult population attending its religious services or coming into any business relation with it whatever. I have already mentioned that there are 19 missionary centers and a corps of 61 missionaries in northwestern and central Alaska extending daily this educational influence to entire communities of Indians or Eskimos.

In 1885 General Eaton, as Commissioner of Education, secured the services of Dr. Sheldon Jackson as general agent for education in Alaska, which had recently been placed under the charge of the Secretary of the Interior. Dr. Jackson had been appointed superintendent of home missions for several States and Territories in the Northwest as early as 1869, and had distinguished himself by the vigor with which he extended the work in the far west. In 1870 he took charge of the work of home missions in the vast region from Mexico

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to Canada and from Nevada to Nebraska. In the early days before railroads had penetrated those regions he traveled on foot or used ox carts or mustang ponies. In the prosecution of his work he traveled in thirteen years 345,027 miles, or an average of 26,540 miles a year. He established and for ten years conducted the "Rocky Mountain Presbyterian." In 1877 he visited Alaska as the first ordained missionary from the United States, and in the next eight years he rapidly established schools and churches in the archipelago, and commenced the process of civilization which has gone on in Alaska ever since. In 1880 he built the church and founded the Industrial Training School for native children at Sitka.

After his appointment as United States agent his trips to the northwest were undertaken for the most part in the *Bear*, a revenue cutter sent out annually by the Secretary of the Treasury. Its captain (M. A. Healy) interested himself warmly in the cause represented by Dr. Jackson in this region, and to him is due in a measure the success in establishing schools in northwest Alaska. And to him and Dr. Jackson is due the original suggestion of the plan of stocking the enormous moss fields of Alaska with herds of reindeer and the training of the natives into skilled herdsmen and teamsters.

It had been obvious, from the beginning of the Government subsidies in 1885–86, that there should be not only education in elementary English branches, but also a training in the employments of civilized life. From the first, at all the missions there was instruction in cooking, housekeeping, and clothes making. Then followed more careful education in the trades of carpentering, blacksmithing, and shoemaking, subsidizing for this instruction the Presbyterian Industrial School at Sitka. As early as 1891 the matter of the introduction of reindeer into Alaska had been brought to my attention by Dr. Sheldon Jackson and Captain Healy, of the United States revenue cutter *Bear*. Upon learning that tame reindeer could be obtained from points in Siberia opposite to Alaska, and that all of Alaska (excepting the river valleys and places on the coast covered with forests) bore large quantities of the kind of moss that furnishes the best food for the reindeer, I became so much interested in the project of introducing the reindeer into northwestern Alaska that I urged Dr. Jackson to appeal to the friends of missionary education for a preliminary sum to begin the experiment at once. From the sum of $2,156 thus procured a first purchase of 16 deer was made in the summer of 1891, and a herd of 171 in the summer of 1892. The Government appropriation of $6,000 became available for the support of reindeer in the summer of 1893, and a further purchase of 124 deer was made, and for the summer of 1894 a still further purchase of 123 was made out of an appropriation of $7,500, making a total of 538 deer purchased in Siberia and placed in a Government herd near Port Clarence. The 16 deer purchased in 1891 have been

allowed to run wild on one of the eastern Aleutian Islands, and since then have in a measure stocked that island with reindeer. From this original herd of 538 reindeer a total number of 1,323 fawns have been born, making an aggregate of 1,861, of which 395 have been lost, injured, or killed in various ways during the five years, leaving 1,466 reindeer in the herds August, 1897.

A plan has been gradually matured for the use of these reindeer in the scheme of education. Two objects are to be secured: (1) The training of the natives as herders and as teamsters. This implies that the natives must be interested in the project; they must take the long step from nomadic fishermen and hunters to dwellers in villages, with permanent employments that will support them and also render them useful to a white population which will eventually come to central and northwestern Alaska. (2) The other important object to be gained is the education of these natives in thrift, so that they will preserve and accumulate the reindeer intrusted to them.

At each mission station there is constantly going on a process of selecting the trustworthy natives—those ambitious to learn the civilization of the white men, those ambitious to hold and increase property. Reindeer intrusted to the ordinary individual savage would disappear within twelve months after the gift.

At the reindeer station a number of apprentices have been selected and rewards for intelligent and persevering industry offered. They were to receive two reindeer for the first year's apprenticeship; at the end of the second year five more, in such a way as to gradually develop the sense of individual ownership of property—a sense which has never been developed in the tribal relation.

[From letter of instruction by Dr. Jackson to the superintendent of the reindeer herd.]

PORT CLARENCE,
UNITED STATES REVENUE-MARINE STEAMER BEAR,
July 4, 1893.

SIR: * * * The herders are to be fed and clothed and housed, also furnished with tobacco or its equivalent, at Government expense. The Siberian herders and the experienced Eskimo, each one will receive, in addition to the above, $50 worth of barter goods at the end of the year and the inexperienced ones $30 worth. If they prefer it they can be paid a portion of the above from time to time as they may need it, only that at the end of the year the amount received shall not exceed the total amount allowed.

When food is plenty and cheap you will purchase with the supplies at the station such oil, meat, dried fish, skins, etc., as are needed at the station. You are also authorized to purchase wood from the natives.

In addition to the paid herders, it is desired that you take into the station a number of wide-awake young men to learn the management of deer. They will be fed, clothed, and housed at Government expense. If they have been faithful to their duties and have shown aptitude in learning for one full year at the station you are authorized to allow them two deer, which can be marked with their brand, but must be continued in the general herd. At the end of the second year you can give them five more. I think it will be well to encourage them to remain with

the herd for three or four years, when they will have sufficient deer, so that two or three of the herders, by combining their holdings, can start a new herd.

If, after a fair trial of a few months, a young man is lazy, indifferent, or dull, you had better send him away from the station and give his place to a more promising one. There is a constant sifting process going on among white men, and the same process is equally needful among the natives.

I would like the first herders especially to be picked men—the ablest and best among their people—as that class will alone secure the best results from the introduction of the deer.

Under the regulations established 9 apprentices have received reindeer—from 2 to 7 each. The total number of reindeer originally assigned to them being 52, the same had increased last August by the birth of fawns to 133.

From the beginning, schoolbooks and apparatus have been furnished for the schools in Alaska. Reindeer are the schoolbooks and apparatus necessary for the education of the western and northern natives. To secure the chief object aimed at in the importation of reindeer from Siberia, it is evident that the reindeer must eventually come into the hands of thrifty persons among the natives, who will preserve the herds, increase them, break them to harness, and make them available, under the management of trained teamsters, for the use of white immigrants who settle in Alaska. The missionary stations furnish the only safe centers for the location of herds and the establishment of schools of instruction in the rearing of the reindeer and in the training of them to harness.

As already mentioned, the missions ascertain the capable and teachable youth among the natives. They are able at any time to furnish a list of the natives in their vicinities noted for good character. At each of these stations 20 or 30 youth, selected from a village population of 300 or more, can be put in training as herdsmen and teamsters. No matter how large the Government appropriation should be, therefore, it would be necessary to connect the reindeer instruction and the establishment of permanent herds in northwest Alaska with these missionary stations.

The small herds loaned to each missionary station as a Government aid are in the nature of an outfit of industrial apparatus. The report of the Indian Bureau shows that the United States Government furnished 10,000 head of stock for the period of 1890–96 for one Indian agency (the Blackfeet), and that seeds, implements, stock, wagons, harness, in large amounts, have been furnished to other agencies. These donations are certainly more justifiable than donations made to prevent the savage peoples from starving, for they are given in the form of apparatus for the instruction of these peoples in the industrial arts and in the practice of thrift. All these things prevent starvation. Just as in the agricultural colleges of the several States the Government money is used to pay for the stock of the model farm, which is used as the apparatus for the instruction of the

pupils, so the reindeer herd is used as apparatus loaned to the missionary stations for the purpose of instruction of the natives. But from three to five years' apprenticeship is needed for the full training of apprentices in the management of reindeer.

Persons who have been brought up to the care of neat cattle and horses, or sheep only, have not thereby acquired the art of managing reindeer, for this requires special apprenticeship. With the first herd (that of 1892) Siberian herdsmen were procured to give instruction in these arts, but the degree of success was so small that in 1894 five families of Laplanders were obtained to take their place. The Laplanders, being a civilized people and devoid of the superstitions which embarrass the Siberian natives, have attained a higher degree of skill in the management of this animal, and also show greater ability in teaching others what they know. After obtaining the reindeer, therefore, the next important matter is the procurement of skilled herdsmen and teamsters from Norway and Sweden. It is of little use to give a herd of reindeer to a missionary station unless a skilled teacher goes with it.

The furnishing of the properly trained Laplander is one of the chief items of expense in the introduction of reindeer into northwestern Alaska. A salary of $200 to $500 a year is necessary for each, and the distribution of the herd at the different points on the seacoast and in the interior is possible only in so far as the Government is able to send these experienced herdsmen and teamsters. In the course of eight or ten years there will grow up a supply of thoroughly educated natives who will render it unnecessary to depend any longer upon Lapland and Finland for teachers. But it is hoped in the meanwhile that there will be some migration from Scandinavia of families of herdsmen and teamsters.

Thus far the original plan of distributing small herds to the missionary stations and furnishing teachers to care for the herds has been put into operation in only four instances. To the missionary station at Cape Prince of Wales, nearest to the Teller Station at Port Clarence, 118 deer were furnished in August, 1894, and Mr. Lopp, who had mastered the art of caring for the reindeer, having been with our herd from the beginning, was made the Government teacher and paid a salary.

The following year 112 deer were loaned to the most promising apprentice, Anti-sarlook (called Charlie), stationed at Cape Nome. In 1896 two other herds of 50 each were loaned, respectively, to the Swedish Evangelical Mission on Golovin Bay and the Episcopal Mission at Fort Adams, on the middle Yukon, near the mouth of the Tanana River. These herds have been loaned on the condition that they are used as apparatus for the instruction of natives in the art of herding deer and training them to harness, and on condition that after three years the Government *may take from* the herd a number of

deer in good condition equal to the original number furnished, the stations retaining the increase. And, pursuing this policy, negotiations have been for some time in progress to loan herds on the same conditions to the Catholic stations at Nulato and Koserefski (important places on the Yukon) and also to the stations at Point Hope (Episcopal) and Point Barrow (Presbyterian) on the Arctic Sea; also to the Moravian stations at Bethel, on the Kuskokwim River, and Carmel, on Bristol Bay, at the entrance to the Bering Sea on the south.

In providing education for Alaska it is important that the centers of industrial education shall coincide with the points that have to be held in hand by the Government for the purposes of relief expeditions, and also with those points from which the mining and other industrial interests of Alaska can be governed. To illustrate this I mention the fact that if the herds which it is proposed to establish at Point Barrow and Point Hope, on the Arctic Ocean, can by any means be increased to the number of 5,000 deer, a number not unusual in Lapland as the possession of a single herdsman, the annual increase of such a herd would amount to nearly 2,000 fawns. It is obvious that with such resources at two points on the Arctic there never need be any further fear of starvation on the part of the crews of whaling vessels detained by ice in that region. A saving of at least $50,000 to the Government would have been effected during the year 1897–98 had those herds been in position. Again, had herds of 5,000 each been at the important strategical points of Nulato, on the great bend of the Yukon, at Fort Adams, in the middle Yukon, at the mouth of Tanana River, or at Circle City, on the upper Yukon, the danger to starving miners would have been very much reduced, if not entirely removed.

Communication with Alaska.—The difficulty met with by all those who would visit Alaska is the impossibility of traversing its vast distances in the winter. This is the great obstacle to the miner who wishes to have access to the gold-bearing regions and to carry with him all the conveniences for procuring comfort in the long arctic night. He wishes also to be in constant communication with the friends he has left behind him in the States. This is also the great obstacle to the missionary who wishes to reach the tribes of native population, convert them to Christianity and lead them to adopt the arts of civilized life.

Looking at the map of Alaska, one sees that the great Yukon River penetrates the interior from the west, forming a sort of backbone to the country. Not realizing the climatic conditions, one would suppose that steamboats could keep up for a large portion of the year a communication with the upper branches of that river situated in British America and in the eastern part of Alaska. When he comes to learn, however, that the Yukon River is closed by ice for three-fourths of the year, he looks southward for other avenues to the interior and first notices the inlets of the Northern Pacific between Sitka and

Unalaska, namely, Prince William Sound, Cooks Inlet, and Copper River. But he finds first high mountains and then a vast table-land extending to the north of these places and separating by a distance of from 500 to 700 miles the mining regions of the upper Yukon from the shipping ports on the ocean. These table-lands can not be traversed in the winter by horses or oxen and scarcely even by the hardy species of dogs that are used for transportation in this region. When one considers the difficulties of a journey of 500 to 700 miles through a region without settlements and without stores of provisions, one looks for another approach to the region, namely, to that from the southeast. Bays, or rivers flowing into the archipelago, at the southeast will bring the traveler to the foot of the mountains; then if a good pass may be found that can be used winter and summer, or if its difficulties can be overcome by means of railroads or some method of rapid transportation, the visitor to the interior may find himself at the head waters of the Yukon. In the future of this Territory it is evident that settlements will be formed at distances from 100 to 300 miles apart from the head waters to the mouth of the river. The natural entrance, therefore, into this region in the winter time would appear to be the gateways at the southeast, at the northern extremities of Lynn Sound, or perhaps at Yakutat Bay. This question of communication with Alaska is so important that it deserves a fuller discussion.

I. The approach to Alaska by way of Bering Sea inadequate for purposes of the Government.—Vessels that pass into Bering Sea stop at the island of Unalaska, where a village of about 300 people is situated, which contains a Russian church and a Methodist mission. On an island in this harbor, too, the first reindeer, 16 in number, obtained in 1891 for the purpose of introducing the reindeer culture into the schools of northwest Alaska, were turned loose and have increased to a considerable herd, but are running wild on the island.

It has not been possible in ordinary winters to continue the voyage beyond Unalaska (which is the eastern link of the chain known as the Aleutian Islands) into the Bering Sea beyond the Pribyloff Islands in winter. On one occasion, however, St. Matthews Island, 400 miles north of the Pribyloff and about 200 miles south by west of St. Lawrence Island and 400 miles from Bering Strait, was reached, but no vessels have ever been able to land at St. Michael or approach the mouth of the Yukon or any of the bays north or south of this region within a radius of from 50 to 100 miles from the mainland on account of the ice. The ice closes in these ports as early as November 1, and they are not open again until the 15th of June and occasionally (as in 1896) not until the middle of July. These northwestern ports are therefore closed to the Government and to commerce from seven and one-half to eight and one-half months in the year, leaving from three and one-half to four and one-*half months for* the entire season's work in the *northwest.*

II. The approach to the interior of Alaska by way of the inlets of the ocean between Sitka and Unalaska.—The management of interior Alaska could not be conducted by Bering Sea. But it might be conducted either from some one of the ports on Prince William Sound, or Copper River, which empties next to it on the east, or from Cooks Inlet to the west of it. Some of the streams flowing into these inlets rise near the headwaters of the Tanana, the Forty-Mile Creek, and the White River—the Tanana flowing into the middle Yukon, the Forty-Mile Creek flowing into the Yukon near the place where the Yukon crosses the boundary line that separates Alaska from the British possessions, and the White River flowing into the Yukon some 50 miles above Dawson in British territory. Should a transportation company build a railroad over this route it would furnish a short and ready communication from the south immediately into the river valleys that are rich in gold, and large villages would grow up very soon at the harbor which formed the starting point of the railroad and at its junction and termini. This route would have the advantage of being wholly within the boundaries of Alaska. On this line, at the headwaters of the four rivers mentioned, one branch could go down the Tanana River to Minook on the middle Yukon, and the other branch might approach the upper Yukon with a terminus at or about Circle City or some point farther south, nearer the British boundary and the gold mines of the Klondike. Should this railroad not be built by private parties, an express and mail route could be established by reindeer with relay houses built on the entire route at intervals of from 10 to 20 miles, stocked with provisions and each guarded by one or two soldiers. But the reindeer route could not follow the canyons of the rivers nor extend into the wooded regions near the ocean, because of the lack of moss. The general rule is that where trees grow the moss is not to be found. The moss feeds directly on the rocks until a humus or soil is formed, and then trees begin to grow. Where there is plenty of moisture, as in the river valleys and the coast region, the moss has already given place to trees.

The distance from the southern harbor to the head waters is about 250 miles, and thence to Minook, at the junction of the Tanana and Yukon rivers, is about 300 miles, and about the same distance to the Yukon on the east. Over a good trail in the moss-covered district the reindeer team with the mail could travel at the rate of 100 to 200 miles in the twenty-four hours if relays are furnished once in 50 miles. For in the arctic night one part of the twenty-four hours is as good as another for making a journey. Consequently the mail from the upper Yukon, and all points down to the middle Yukon, could reach, as before asserted, the ocean steamer at Prince William Sound in six days from Minook, and in eight days more would reach Seattle, making communication from all the upper parts of the Yukon two weeks old on reaching Seattle.

Another point of importance is that all of northwest Alaska can be

reached by reindeer express from Minook, near the mouth of the Tanana on the middle Yukon. The distance from Minook to St. Michael is about 600 miles, and from Minook to Cape Prince of Wales about 800 miles. It is evident that with reindeer all the way, or with a railroad for a part of the way from Prince William Sound, all parts of Alaska can be reached by reindeer transportation at any time in the winter, and with 50-mile relays the reindeer could bring mail from St. Michael to Minook in six days, and in eight days all the way from Cape Prince of Wales to Minook, or even from Point Barrow, which is the same distance from Minook as the Cape Prince of Wales. Commercial companies could then hear from their whaling fleets, getting news not more than a month old on arrival at Seattle.

III. The approach to the interior of Alaska by Chilkat on the southeast.—Southeastern Alaska, including the Alexander Archipelago, in which Sitka and the neighboring islands are situated, is accessible at all times of the year. A bimonthly steamer has for years sailed from Seattle to the northernmost inlet which opens beyond Juneau and extends to Dyea. Since the gold excitement trips are more frequent. Of the harbors in the north of this inlet up Lynn Sound, those at Chilkat and Haines, are deep; that of Dyea is shallow.

Inasmuch as the matter of opening up a railroad communication from Prince William Sound or from Cooks Inlet is a mere project, and inasmuch as it would not be feasible to make a reindeer route to or from either of these places until oceanic steamship lines, or an extension of the steamship line from Sitka has made terminal points of these places, the only alternative for the present action is to complete communication from Chilkat or Haines in the northern inlets of the headwaters of the channel with the upper Yukon by White Pass (from Skagway), Chilkoot Pass (from Dyea), or by Chilkat Pass at the headwaters of the Chilkat River to Lake Arkell, or farther to the west on a route sometimes called the "Dalton trail," a Mr. Dalton having the past season driven some 500 head of cattle and 6,000 sheep over this route to the gold regions. If a railroad should be constructed from Dyea to the navigable waters that descend into the Yukon, there would still be occasion for reindeer transportation 400 or 500 miles beyond to the gold regions for seven or eights months in the year.

The winter climate of Alaska.—It is very difficult to realize the conditions prevalent in Alaska in the winter time. In places where the wind from the southwest comes laden with moisture from the ocean, the snow sometimes falls in the course of the winter to a depth of 12 feet. Where the high mountains cause the south winds to lose a large portion of their moisture the snow fall is much less. The temperature in some months of the year will average many degrees below zero, frequently dipping as low as 50, 60, or even 70 degrees below zero, Fahrenheit. Other months of the same winter will have a temperature, for the entire month, of from *zero to freezing point*, comparatively comfortable *weather. The meteorological records* kept in this region show

that the coldest month may be December, January, or February. There is great variation from one year to another. Sometimes there is a month in which a storm occurs on an average twice a week for a whole month together. In order to imagine the terrors of a storm in Alaska, one must conceive a perpetual night varying from twilight at midday to the blackest darkness for three-fourths of the day, and in this night he must conceive a Minnesota blizzard in which the thermometer instead of varying from zero to 30 degrees below, as in Minnesota, varies from 30 to 60 degrees below. The impossibility of combating such a storm is obvious.

Communication over the surface of the snow.—For eight months of the year central and northern Alaska may be conceived as a vast snow field; it is not the more difficult to penetrate on that account, however. The snow covers the region like a vast white asphalt pavement. It fills up the small crevices and the deep gulches and makes one smooth surface undulating with the hills and valleys. On the surface of the snow is a hard crust which will bear up men and animals and especially the reindeer with his broad foot. While the winter time can not be used at all for transportation on the Arctic Ocean or Bering Sea or on the rivers of Alaska, the long winter is capable of being used by the reindeer for communication throughout the interior. On a snow surface, with not too steep hills or too deep valleys, the reindeer can travel his 50, 70, or even 90 miles a day, getting his food at meal times by thrusting his tough lips through the snow to the moss.

The supply of reindeer moss for food.—Conceive all Alaska as one vast rock. The forces of nature—the sun, the rains, the frosts, the vital power of the seeds of the moss and of hardy trees—all these elements work on the rock to subdue it for vegetation. On the coast near the ocean where the winds are laden with moisture as well as on the river valleys the first beginnings of vegetation appeared. The rock was eaten into by the moss plant. After the moss had flourished for untold ages it had created a humus or soil in which the seeds of other plants could take root. The moss epoch then was followed by the tree epoch. When the trees grew in the river valleys and on the coast regions the moss could not any longer flourish. But by this time the moss had conquered the rock regions far up the mountain sides and over all the hills in Alaska even up to the Arctic Ocean. This gives at one glance the actual view of the situation in Alaska. Around the southern coasts and in the river valleys trees flourish and moss is not found. Back on the hills and for a mile up the high mountains reindeer moss is to be found in immense quantities. A careful estimate finds sufficient food for ten millions of reindeer, basing the estimate on the present capacity of Finland and Lapland for the support of the reindeer.

But the routes for reindeer travel must not be laid out in river valleys nor along the coast of the ocean. The reindeer would starve on account of lack of moss. This was the actual experience in the journey

made by Mr. Kjellmann in the winter of 1897, from Port Clarence south to Bristol Bay. He accomplished the other parts of his journey, even the scaling of high mountain passes without difficulty, but in attempting to conduct a portion of his return journey through the forest between the Kuskokwim and Yukon rivers he could not find moss enough to subsist his reindeer except by cutting down trees and using an inferior quality of moss. As it was, a half dozen of his deer perished. These reindeer journeys can be accomplished only on trails leading over the hills above the river valleys.

The introduction of reindeer from Siberia into Alaska.—The importation of reindeer from Siberia has settled favorably all the questions of the Alaska problem except the facility of obtaining a supply and the possibility of obtaining it at any time of the year.

The following table shows at a glance the number imported each year already mentioned above:

Year.	Number.	Year.	Number.
1891	16	1895	123
1892	171		
1893	124		
1894	120	Total	554

The 16 reindeer obtained in 1891 were turned loose on Amaknak Island, Unalaska, and have increased, but the exact number is not now known. The other 538 deer have been herded carefully and their present number is 1,466, of which 466 was the increase in fawns in the spring of 1897.

It will be seen by the above table that 538 reindeer purchased during the four years, 1892 to 1895, an average of 134 per annum, have increased to 1,466 deer. It is said that the deer born on the American side are heavier than the average deer imported from Siberia. If the Government herd amounted to 5,000 deer the annual increase would be between 2,000 and 3,000, a sufficient number to stock all the mission stations in Alaska.

The following table shows the location of these deer on June 30, 1897:

	Old deer.	Fawns.	Total.
1. Government herd, Teller Station	343	126	469
2. Cape Nome herd	193	85	278
3. Swedish herd, Golovin Bay	70	40	110
4. Episcopal herd, Golovin Bay	69	40	109
5. Cape Prince of Wales herd	243	124	367
6. Ta-vo-tuk, apprentice, Teller Station	15	11	26
7. Se-keog-look, apprentice, Teller Station	7	5	12
8. Wocksock, apprentice, Teller Station	2	6	
9. Ah-Look, apprentice, Teller Station	3	2	
10. Electoona, apprentice, Teller Station	4	3	
11. Moses, apprentice, Golovin Bay	20	11	31
12. Martin, apprentice, Golovin Bay	12	7	19
13. Okitkon, apprentice, Golovin Bay	10	5	15
14. Tatpan, apprentice, Golovin Bay	7	5	12
Total	1,000	466	1,466

Herds numbered 2 and 5 have been ordered to Point Barrow to relieve suffering whalers. Two hundred deer trained to harness, or as near that number as could be obtained, were ordered on September 22, 1897, to St. Michael by the honorable the Secretary of the Interior to assist in moving supplies to mines in the Yukon Valley.

The following table shows the annual increase and the number received from previous year:

	1891.	1892.	1893.	1894.	1895.	1896.	1897.
Total from previous year	.....	.....	143	323	492	743	1,000
Fawns surviving	.....	.....	79	145	276	357	466
Purchased during summer	16	171	124	120	123	.....	.....
Total October 1	.....	171	346	588	891	1,100	1,466
Loss	.....	28	23	96	148	100	.....
Carried forward	.....	143	323	492	743	1,000	.....

The herdsmen first imported from Siberia were members of the Indian tribes, superstitious and uncivilized in their habits. Their method of caring for the deer during the time of fawning was not good.

Since obtaining five families (seventeen persons in all) from Lapland in 1894 the training of the reindeer has proceeded more satisfactorily. The Eskimo apprentices, some twenty-five in number, have learned enough to make them good assistant herdsmen and two of them are excellent teamsters; but it would seem that five years' apprenticeship is required to make intelligent people well acquainted with all the methods needed in training the reindeer to harness, in caring for the young, and with the various other arts which are in possession of the herdsmen's families in Finland and Lapland.

The great difficulty, however, in the experiment in northwestern Alaska is the obtaining of efficient herdsmen. Three of the families of Lapps, after remaining the three years agreed upon, have returned to Lapland. While two skilled Lapp herders, with their boys and with Eskimo apprentices, can handle a large herd of 1,000 or 2,000 reindeer, it requires one Laplander to each ten reindeer trained to the harness as teamsters.

The one link necessary for this satisfactory solution of Alaskan problems is the supply of a sufficient number of reindeer trained to the harness and herders and teamsters from Lapland and Finland skilled in the business. While the deer are large and strong the herdsmen and teamsters obtained from Siberia are of little avail. The methods of the Laplanders, which have been tried during the past three years, have proved to be far better than those of the Siberians. They are superior to the Siberians in the management of the reindeer in the harness, in kindness to them, in civilized habits of living (the Laplanders being a Christian people, the Siberians having a low form of fetichism), and in the use of a language that is known to Europeans.

Of transportation by dogs, Dr. Jackson says:

The dog in the Arctic seems to be a middle-sized one, with much of the appearance and habits of the wolf. They are a hardy animal, suited to their environment. From five to eight make a good team. They are frequently hitched up tandem. When traveling an attendant usually runs in front, while a second guides the sled. They will make as many miles in a day as the attendant running in front can lead them, and will carry on the sled about 125 pounds to the dog. When traveling they are fed from 1 to 1½ pounds of dry fish per day. When at home they are allowed to forage for themselves. If a sled load of freight is drawn by dogs a second sled load is necessary for carrying provisions for the two teams of dogs, if the journey is a long one. Consequently it is impossible to utilize dogs on journeys very distant from sources of supply of dog food. Since the rapid increase of the white population in Alaska, and the development of the mines, dog transportation has proved entirely inadequate, although the necessity has been so great that the price of dogs has run up to $100 and $200 apiece. A year ago this fall the steamer *Bella* was frozen in at Fort Yukon, 80 miles distant from Circle City. An effort was made to forward the provisions from the steamer by dog teams on the ice to Circle City and Dawson, but the effort failed. It was found impossible to move the food in sufficient quantities and with sufficient speed to supply the miners of the Yukon, and by spring flour had advanced at Dawson City from $50 to $125 per hundred pounds.

The Bureau of Education has been charged with the care of education in Alaska. The object proposed from the beginning by the Commissioners preceding me, General Eaton and Colonel Dawson, has been to provide such education as to prepare the natives to take up the industries and modes of life established in the States by our white population, and by all means not try to continue the tribal life after the manner of the Indians in the western States and Territories. If the natives of Alaska could be taught the English language, be brought under Christian influences by the missionaries and trained into the forms of industry suitable for the Territory, it seems to follow as a necessary result that the white population of Alaska, composed of immigrants from the States, would be able to employ them in their pursuits, using their labor to assist in mining, transportation, and in the production of food. A population of 40,000 natives engaged in reindeer herding and transportation would furnish the contingent needed to complement or make possible the mining industry. After cautious experiments in 1891, 1892, and 1893, and especially after the arrival of the Lapland families as herdsmen in 1894, it has become certain that the experiment will prove a success. A herd of from 100 to 500 reindeer should be placed at each mission station together with a Lapland herdsman who can instruct twenty or thirty apprentices in the management of the deer. The wages for work done in behalf of the mission station, as has been shown, can be paid by the transfer of reindeer to these apprentices, so that after sufficient skill has been acquired the apprentices will have with them the nucleus of a herd of reindeer to commence their career with. They and their sons will by and by take the reindeer trained for harness and find a profitable employment with transportation companies. At home a

large herd will accumulate, furnishing food in the form of reindeer milk and reindeer meat.

The following list of missionary stations will show how the entire territory is commanded from these strategical points.

1. On the Arctic are located the following:

	Denomination.	Teachers.
1. Point Barrow	Presbyterian (Government school)	One missionary.
2. Point Hope	Episcopal	Do.
3. Kotzebue Sound	Quaker	Three missionaries.

With herds of from 1,000 to 5,000 at each of these stations as already intimated, there need never be the slightest fear regarding the whalers who are caught in the ice before reaching Bering Strait. If they can not bring their vessels to the protected harbors near by the missionary stations they can at least escape over the ice and obtain sure subsistence until spring time. They can load their vessels, in fact, with supplies from one of these stations and on the breaking up of the ice in the spring continue their whaling voyages.

2. The following missionary stations are located along the coast from Bering Strait to Unalaska in the Bering Sea:

	Denomination.	Teachers.
4. Cape Prince of Wales	Congregational	Two missionaries.
5. St. Lawrence Island	Presbyterian	Do.
6. do	Government school	One teacher.
6. Golovin Bay	Swedish Lutheran	Three missionaries.
7. Kangekosook	do	Two missionaries.
8. Unalaklik	do	Do.
9. St. Joseph	Roman Catholic	Seven missionaries.
10. Cape Vancouver	do	Two missionaries.
11. Bethel	Moravian	Five missionaries.
12. Carmel	do	Four missionaries.

It has been shown that stations like those on the Arctic Ocean can all be placed in sufficient communication in the winter months with the States through reindeer expresses sent with the mail to and from Minook, on the middle Yukon, the most distant station being only four days out by the swiftest mail, established by relays, or only sixteen days by the slowest form of reindeer express.

3. The missionary stations on the Yukon are the following:

	Denomination.	Teachers.
13. Igavig	Moravian	Two missionaries.
14. Ikkamute	Roman Catholic	One missionary.
15. Koserefski	do	Eleven missionaries.
16. Sacred Heart	do	
17. Anvik	Episcopal	Three missionaries.
18. Nulato	Roman Catholic	Do.
19. Circle City	Episcopal	Two missionaries.

While the stations on the Arctic Sea are of vital importance for the safety of the whaling fleet, those on the Yukon are of vital impor-

tance for transportation in the winter time, and besides the missionary stations there will doubtless spring up many camps of miners from the middle Yukon on to its highest sources and also along all of the tributaries on which gold may be found. It is too much to expect that miners will raise herds of reindeer, or indeed that reindeer can possibly be raised in the immediate vicinity of a mining camp, but the missionary stations removed at a safe distance from these villages can produce hundreds and thousands of reindeer, together with skilled natives who have learned to speak the English language and have acquired the manners and customs of our people. These will become herdsmen and teamsters for the mines.

4. The Aleutian Islands. On one of these (20) Unalaska has a missionary establishment, Methodist, with two missionaries and one Government teacher.

The Aleutian Islands are all said to be moss-bearing, and they should all have herds of reindeer. If not tame, at least a few should be placed on each island to run wild and stock the pastures.

5. The missionary stations along the northern Pacific Coast between Sitka and Unalaska are:

	Denomination.	Teachers.
21. Wood Island	Baptist	Four missionaries.
22. Yakutat	Swedish Lutheran	Three missionaries.
23. Kadiak[1]		One Government teacher.
24. Afognak[1]		Do.
25. Unga[1]		Do.

[1] Government schools.

The voyage from Sitka to Unalaska, almost directly west, is 1,200 miles. Along this coast the above missionary stations are established. Transportation with the interior of Alaska from these stations will be made possible by the possession of reindeer herds.

6. The missionary stations in the Sitka Archipelago at the southeast are:

	Denomination.	Teachers.
26. Haines	Presbyterian	Four missionaries.
26. do	Government school	One teacher.
27. Hoonah	Presbyterian	Four missionaries.
27. do	Government school	One teacher.
28. Juneau	Presbyterian	Three missionaries.
29. do	Episcopal	One missionary.
30. do	Roman Catholic	Three missionaries.
31. Douglas	Quaker	Do.
31. do	Two Government schools	Two teachers.
32. Sitka	Presbyterian	Twelve missionaries.
32. do	Two Government schools	Five teachers.
33. do	Episcopal	One missionary.
34. Kake	Quaker	Two missionaries.
35. Fort Wrangel	Presbyterian	Do.
35. do	Government school	One teacher.
36. Saxman	Presbyterian	Two teachers.
36. do	Government school	Do.
37. Jackson	Presbyterian	Four missionaries.
37. do	Government school	One teacher.
38. Metlakahtla	Independent	One missionary and assistants.

These stations can not at present be used for education in the art of managing the reindeer for the lack of moss fields. It is therefore deemed very important that a large herd of reindeer should be placed as near as possible to this region, namely, at some point northwest of the Lynn Canal, as near as possible to Chilkat. To this place could be sent enterprising and promising young men from the mission schools in the Sitka Archipelago to be trained for teamsters and herdsmen, for it is at this point, as has already been pointed out, that the problem of winter communication with Alaska, so necessary to its Government management, must be solved.

The reindeer transportation must move out from the north of the Lynn Canal at Chilkat or Dyea. There should be an appropriation of $25,000 per annum for the expense of the camp of a reindeer station at this place—that is, as near as possible to the Lynn Canal—although probably the place selected on Alaskan territory for this purpose must be between the headwaters of the Tanana and White rivers, and 300 miles northwest of Chilkat. This herd should be increased from year to year until it amounts to 5,000, in order to hurry forward the work of developing the resources of Alaska by reindeer culture.

The Government may ultimately be able from time to time to dispose of a sufficient number of these reindeer to reimburse the Treasury for the expense incurred. It is desirable, of course, as soon as possible after a demonstration has been made of the practicability of the scheme and its best methods have been discovered, that private enterprise shall take up and carry on the industry, but it is all important that at least one part of the reindeer industry should be kept along its present lines until the natives of Alaska have been elevated from the status of a hunting and fishing civilization to that of farming and grazing. But if the reindeer enterprise gets entirely into the control of private business parties before this is accomplished its benefits may be turned away from the native people. It is therefore very important that the missionary stations shall be supplied with reindeer herds after the plan already inaugurated by this Bureau.

All of which is respectfully submitted.

W. T. HARRIS,
Commissioner.

Hon. CORNELIUS N. BLISS,
Secretary of the Interior.

STATISTICS OF STATE COMMON-SCHOOL SYSTEMS.

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STATISTICS OF STATE COMMON-SCHOOL SYSTEMS.

TABLE 1.—*The total population, the school population, and the adult male population.*

State or Territory.	Estimated total population in 1897.	The school population.				Estimated number of male persons 21 years and over in 1897.
		Estimated number of children 5 to 18 years of age in 1897.			Percentage of boys.	
		Boys.	Girls.	Total.		
1	2	3	4	5	6	7
United States	71,374,142	10,641,992	10,440,480	21,082,472	50.48	19,396,210
North Atlantic Division	19,947,800	2,542,225	2,522,167	5,064,392	50.19	5,791,300
South Atlantic Division	9,732,882	1,668,560	1,640,810	3,309,370	50.42	2,217,790
South Central Division	12,844,600	2,257,910	2,198,680	4,456,590	50.66	2,960,450
North Central Division	24,933,500	3,693,330	3,612,310	7,305,640	50.56	6,922,700
Western Division	3,915,360	479,967	466,513	946,480	50.72	1,503,970
North Atlantic Division:						
Maine	657,300	81,710	79,990	161,700	50.53	200,100
New Hampshire	398,700	44,480	44,380	88,860	50.06	125,100
Vermont	333,000	42,330	39,770	82,100	51.55	101,900
Massachusetts	2,634,000	300,100	302,100	602,200	49.83	782,200
Rhode Island	395,700	48,020	48,450	96,470	49.77	114,600
Connecticut	840,100	99,350	98,350	197,700	50.24	252,300
New York	6,851,000	840,950	843,050	1,684,000	49.95	2,021,000
New Jersey	1,768,000	a231,585	a225,277	a456,862	50.69	506,100
Pennsylvania	6,070,000	853,700	840,800	1,694,500	50.38	1,688,000
South Atlantic Division:						
Delaware (1892)	173,200	24,750	24,080	48,830	50.69	48,900
Maryland	1,179,000	173,200	172,000	345,200	50.18	306,300
District of Columbia	277,782	34,200	36,240	70,440	48.55	77,690
Virginia	1,704,000	293,400	288,700	582,100	50.41	389,800
West Virginia (1896)	849,300	144,400	141,200	285,600	50.56	202,000
North Carolina (1896)	1,763,000	315,050	308,350	623,400	50.54	373,500
South Carolina	1,274,000	238,900	234,300	473,200	50.48	290,800
Georgia (1896)	2,015,000	361,700	353,600	715,300	50.57	436,500
Florida	497,600	82,960	82,340	165,300	50.17	122,300
South Central Division:						
Kentucky (1896)	1,993,000	329,900	322,900	652,800	50.53	483,300
Tennessee (1896)	1,877,000	326,900	315,400	642,300	50.89	427,400
Alabama	1,741,000	315,000	306,600	621,600	50.68	373,700
Mississippi (1895)	1,431,000	265,300	257,200	522,500	50.78	299,300
Louisiana (1896)	1,253,000	214,200	212,300	426,500	50.22	280,700
Texas (1896)	2,979,000	529,200	516,800	1,046,000	50.61	714,300
Arkansas	1,290,000	233,600	226,600	460,200	50.75	294,800
Oklahoma	280,600	43,810	40,880	84,690	51.73	86,950
North Central Division:						
Ohio	3,834,000	550,100	537,900	1,088,000	50.57	1,061,000
Indiana	2,244,000	334,450	328,500	662,950	50.45	609,200
Illinois	4,594,000	653,550	644,450	1,298,000	50.34	1,288,000
Michigan	2,246,000	314,500	309,200	623,700	50.42	662,300
Wisconsin	2,072,000	311,900	307,300	619,200	50.37	567,100
Minnesota	1,700,000	248,230	243,520	491,750	50.48	490,900
Iowa	2,101,000	321,900	311,900	633,800	50.79	571,700
Missouri	3,036,000	476,500	468,000	944,500	50.45	799,700
North Dakota (1896)	303,900	42,830	40,060	82,890	51.67	93,000
South Dakota (1896)	342,900	51,370	49,030	100,400	51.16	100,900
Nebraska	1,131,000	174,000	166,700	340,700	51.08	322,100
Kansas	1,329,000	214,000	205,750	419,750	50.98	356,800
Western Division:						
Montana	229,400	20,930	20,510	41,440	50.52	113,600
Wyoming (1896)	99,700	11,010	10,260	21,270	51.78	44,420
Colorado	564,800	62,840	61,460	124,300	50.56	228,000
New Mexico	174,900	25,060	24,020	49,080	51.07	51,180
Arizona	80,650	10,360	10,140	20,500	50.52	32,060
Utah	260,700	42,810	41,800	84,610	50.59	68,320
Nevada	41,610	4,617	4,483	8,100	50.73	19,050
Idaho	138,100	19,220	18,160	37,380	51.43	51,540
Washington (1896)	479,700	55,730	53,070	108,800	51.20	201,700
Oregon (1896)	378,800	51,590	50,510	102,100	50.52	134,900
California	1,467,000	175,800	172,100	347,900	50.54	561,200

a By State census.

...te school censuses.

School census. Age.	Number of children enumerated. Boys.	Girls.	Total.
	6	7	8
21			210,341
16	33,184	32,955	66,139
21	46,326	43,840	90,166
15			431,387
15	37,676	37,586	75,262
16			179,253
			1,203,190
18	231,585	225,277	456,862
13			(d)
21	15,827	17,758	33,585
6-18			55,014
5-21	339,475	326,058	665,533
6-21	155,105	141,412	296,517
6-21	323,427	315,973	639,400
6-18	306,594	298,377	604,971
6-21	78,666	73,932	152,598
6-20	375,259	360,846	736,105
6-21	370,252	350,671	720,923
7-21			613,996
5-21	281,555	259,976	541,531
6-18			419,753
8-17	366,320	352,344	718,664
6-21	235,856	227,820	463,676
6-21	47,082	43,503	90,585
6-21	602,910	570,327	1,173,237
6-21	388,182	361,720	749,902
6-21	710,974	685,797	1,396,771
5-20	353,984	347,250	701,234
4-20	353,500	343,433	696,933
5-21	369,772	357,922	727,694
6-20	490,627	482,520	973,147
6-20	34,032	31,860	65,892
6-20	55,194	51,303	106,497
5-21	181,037	173,892	354,929
5-21	250,930	245,019	495,949
6-21	23,289	22,890	46,179
6-21			130,362
5-21			48,924
6-18			17,427
6-18	41,168	40,714	81,882
6-18	4,696	4,416	9,112
5-21	22,172	19,956	42,128
5-21	61,267	59,296	120,563
4-21	65,647	63,973	129,620
5-17	172,637	168,315	340,952

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TABLE 2.—*Data from United States Census reports, of use in studying educational conditions.*

State or Territory.	Number of children 5 to 18 years of age to every 100 persons of the total population.			Number of adult males to every 100 children 5 to 18 years of age in 1890.	Percentage of white children 5 to 18 years of age that were of foreign birth or parentage in 1890.	Percentage of foreign of the total population in 1890	Population to the square mile in 1890.	Percentage of the population in cities of 8,000 inhabitants and over in 1890.
	1870.	1880.	1890.					
1	2	3	4	5	6	7	8	9
United States	31.27	30.04	29.61	91.4	33.5	14.77	21	29.20
North Atlantic Division	28.30	26.87	25.39	114.4	45.8	22.34	107	51.81
South Atlantic Division	33.02	32.24	34.04	66.8	6.6	2.35	33	16.03
South Central Division	33.92	33.13	34.76	65.9	8.6	2.93	19	10.45
North Central Division	32.40	30.63	29.33	94.6	41.5	18.16	30	25.91
Western Division	25.57	25.13	24.33	156.7	44.7	25.46	3	29.99
North Atlantic Division:								
Maine	28.01	25.71	24.60	123.7	25.0	11.94	22	19.72
New Hampshire	24.75	22.80	22.29	140.8	38.4	19.21	42	27.37
Vermont	27.18	25.96	24.65	124.1	33.4	13.26	36	7.93
Massachusetts	25.51	23.98	22.87	129.9	60.5	29.35	278	69.90
Rhode Island	25.66	24.64	24.38	118.7	62.4	30.77	318	78.89
Connecticut	25.86	24.97	23.54	127.6	54.6	24.60	154	51.63
New York	28.09	26.32	24.57	120.1	54.8	26.19	126	60.02
New Jersey	29.01	27.98	26.04	109.9	48.3	22.77	194	54.04
Pennsylvania	30.55	29.43	27.92	99.6	32.3	16.08	117	40.93
South Atlantic Division:								
Delaware	31.84	29.11	28.19	100.1	17.3	7.81	86	36.46
Maryland	31.30	29.89	29.28	88.7	24.4	9.05	106	44.65
District of Columbia	27.01	26.87	25.38	110.3	26.3	8.15	3,840	100.00
Virginia	32.39	32.43	34.16	67.0	2.8	1.11	41	13.40
West Virginia	34.13	33.37	33.62	70.7	5.9	2.48	31	6.95
North Carolina	33.60	32.30	35.35	59.9	.7	.23	33	3.87
South Carolina	33.15	33.21	37.14	55.1	2.3	.54	38	6.86
Georgia	34.42	33.17	35.50	61.0	2.1	.66	31	10.84
Florida	34.03	32.82	33.23	74.0	11.5	5.86	7	12.02
South Central Division:								
Kentucky	34.41	33.14	32.76	74.0	8.7	3.19	46	14.87
Tennessee	34.13	33.44	34.22	66.5	2.9	1.13	42	11.45
Alabama	34.40	33.37	35.70	60.1	3.2	.98	29	5.89
Mississippi	33.70	34.12	36.69	57.3	3.1	.62	28	2.64
Louisiana	31.11	31.93	34.04	65.8	17.8	4.45	25	23.65
Texas	34.80	32.60	35.10	68.3	16.9	6.84	9	10.08
Arkansas	34.16	33.15	35.68	64.0	3.5	1.26	21	4.89
Oklahoma	.....	.....	30.18	102.7	9.6	4.43	2	.....
North Central Division:								
Ohio	31.74	29.75	28.37	97.6	30.4	12.51	90	31.57
Indiana	33.75	31.37	29.54	91.9	17.8	6.67	61	18.27
Illinois	32.24	30.66	28.26	99.2	47.0	22.01	68	38.83
Michigan	30.28	28.37	27.77	106.2	56.1	25.97	36	26.08
Wisconsin	33.57	30.85	29.88	91.6	72.4	30.78	31	25.17
Minnesota	32.45	30.43	28.93	99.8	76.4	35.90	16	28.37
Iowa	33.06	31.40	30.17	90.2	42.6	16.95	34	14.08
Missouri	33.57	32.35	31.11	84.7	22.5	8.77	39	26.27
North Dakota	23.74	24.34	27.30	112.2	80.3	44.58	3	.....
South Dakota			29.29	100.5	61.2	27.69	4	3.10
Nebraska	28.07	29.88	30.12	94.5	42.1	19.13	14	24.46
Kansas	29.83	31.73	31.59	85.0	26.4	10.36	17	11.62
Western Division:								
Montana	10.20	17.10	18.06	274.0	49.4	32.61	1	18.58
Wyoming	9.39	18.06	21.33	208.8	47.2	24.57	1	19.26
Colorado	22.47	18.72	22.00	181.8	36.3	20.38	4	37.07
New Mexico	31.90	29.85	28.07	104.3	13.2	7.33	1	.....
Arizona	16.78	19.59	25.42	156.4	57.1	31.52	1	.....
Utah	35.05	33.39	32.45	80.7	66.6	25.52	3	28.73
Nevada	12.56	18.22	21.87	209.3	60.8	32.14	0¼	18.60
Idaho	11.30	22.98	27.07	137.9	41.1	20.69	1	.....
Washington	26.96	27.19	22.69	185.3	39.3	25.76	5	28.27
Oregon	32.34	28.63	26.96	132.1	27.9	18.27	3	18.14
California	24.48	25.03	23.72	161.3	51.8	30.32	8	40.98

TABLE 8.—*School ages of the several States—State school censuses.*

State or Territory.	Age for free attendance at the public schools.	Age for compulsory attendance.	School census.				
			Date of latest school census reported.	Age of children enumerated.	Number of children enumerated.		
					Boys.	Girls.	Total.
1	2	3	4	5	6	7	8
North Atlantic Division:							
Maine	5-21	8-15	1897	4-21			210,341
New Hampshire	Over 6	8-14	1897	5-16	33,184	32,955	66,139
Vermont	5-21	8-15	1897	5-21	46,326	43,840	90,166
Massachusetts	No limit.	a 8-14	1896	5-15			431,387
Rhode Island	Over 5	7-15	1897	b 5-15	37,676	37,586	75,262
Connecticut	4-16	8-16	1896	4-16			179,263
New York	5-21	8-16					1,203,199
New Jersey	5-20	7-12	1897	5-18	231,585	225,277	456,862
Pennsylvania (1896)	6-21	c 8-13	1896	8-13			(d)
South Atlantic Division:							
Delaware (1893)	6-21	(e)	1893	6-21	15,827	17,758	33,585
Maryland	6-21	(e)	(f)				
District of Columbia	6-18	6-15	1894	6-18			55,014
Virginia	5-21	(e)	1895	5-21	339,475	326,058	665,533
West Virginia (1896)	6-21	8-14	1896	6-21	155,105	141,412	296,517
North Carolina (1896)	6-21	(e)	1896	6-21	323,427	315,973	639,400
South Carolina	6-21	(e)	(f)				
Georgia	6-18	(e)	1893	6-18	306,594	298,377	604,971
Florida	6-21	(e)	1896	6-21	78,666	73,932	152,598
South Central Division:							
Kentucky (1896)	6-20	7-14	1896	6-20	375,259	360,846	736,105
Tennessee (1896)	6-21	(e)	1895	6-21	370,252	350,671	720,923
Alabama	7-21	(e)	1897	7-21			613,996
Mississippi (1895)	5-21	(e)	1894	5-21	281,555	259,976	541,531
Louisiana	6-18	(e)	1897	6-18			419,753
Texas (1896)	8-17	(e)	1895	8-17	366,320	352,344	718,664
Arkansas	6-21	(e)	1897	6-21	235,856	227,820	463,676
Oklahoma	6-21	(e)	1897	6-21	47,082	43,503	90,585
North Central Division:							
Ohio	6-21	c 8-14	1897	6-21	602,910	570,327	1,173,237
Indiana	6-21	8-14	1897	6-21	388,182	361,720	749,902
Illinois	6-21	7-14	1897	0-21	710,974	685,797	1,396,771
Michigan	5-20	7-16	1897	5-20	353,984	347,250	701,234
Wisconsin	4-20	7-13	1897	4-20	353,500	343,433	696,933
Minnesota	5-21	8-16	(f)				
Iowa	5-21	(e)	1897	5-21	369,772	357,922	727,694
Missouri	6-20	(e)	1897	6-20	490,627	482,520	973,147
North Dakota (1896)	6-20	8-14	1895	6-20	34,032	31,860	65,892
South Dakota (1896)	6-20	8-14	1896	6-20	55,194	51,303	106,497
Nebraska	5-21	8-14	1897	5-21	181,037	173,892	354,929
Kansas	5-21	8-14	1898	5-21	250,930	245,019	495,949
Western Division:							
Montana	6-21	8-14	1897	6-21	23,289	22,890	46,179
Wyoming (1896)	6-21	g 6-21	(f)				
Colorado	6-21	8-14	1897	6-21			130,362
New Mexico	6-21	8-16	1897	5-21			48,924
Arizona	6-18	(e)	1897	6-18			17,427
Utah	6-18	8-14	1897	6-18	41,168	40,714	81,882
Nevada	6-18	8-14	1897	6-18	4,696	4,416	9,112
Idaho	5-21	8-14	1897	5-21	22,172	19,956	42,128
Washington (1896)	5-21	8-15	1896	5-21	61,267	59,296	120,563
Oregon (1896)	4-20	8-14	1896	4-21	65,647	63,973	129,620
California	6-21	8-14	1897	5-17	172,637	168,315	340,952

a 8 to 15 where manual training is given.
b Inclusive.
c To 16 unless at work.
d Census imperfect.
e No compulsory-attendance law.
f No school census.
g Penalty operative only in case of children 7 to 16.

TABLE 4.—*Number of pupils enrolled in the common schools at various periods, and the relation of the enrollment to the school population.*

State or Territory.	Number of different pupils enrolled during the school year, excluding duplicates.				Per cent of school population (5 to 18 years of age) enrolled.			
	1870-71.	1879-80.	1889-90.	1896-97.	1870-71.	1879-80.	1889-90.	1896-97.
1	2	3	4	5	6	7	8	9
United States	7,561,582	9,867,505	12,722,581	14,652,492	61.45	65.50	68.61	69.50
North Atlantic Division	2,743,344	2,930,345	3,112,622	3,545,164	77.95	75.17	70.45	69.98
South Atlantic Division	603,619	1,242,811	1,785,486	2,070,287	30.51	50.74	59.22	62.56
South Central Division	767,839	1,371,975	2,293,579	2,724,946	34.17	46.43	60.14	61.14
North Central Division	3,300,660	4,033,828	5,015,217	5,587,456	76.87	75.84	76.46	76.48
Western Division	146,120	288,546	515,677	724,639	54.77	64.96	70.01	76.56
North Atlantic Division:								
Maine	a 152,600	149,827	139,676	132,139	a 87.35	89.80	85.88	81.72
New Hampshire	71,957	64,341	59,813	64,207	91.31	81.32	71.28	72.25
Vermont	b 65,384	75,238	b 65,608	65,349	.....	87.21	.....	79.60
Massachusetts	273,661	306,777	371,492	439,367	72.34	71.76	72.56	72.97
Rhode Island	a 34,000	40,604	52,774	62,337	a 59.24	59.59	62.65	64.63
Connecticut	113,588	119,694	126,505	143,921	80.83	76.97	72.02	72.80
New York	1,028,110	1,031,593	1,042,160	1,203,199	82.98	77.10	70.71	71.48
New Jersey	169,430	204,961	234,072	294,880	63.20	64.77	62.21	64.53
Pennsylvania	834,614	937,310	1,020,522	1,139,765	76.35	74.37	69.53	67.27
South Atlantic Division:								
Delaware	20,058	27,823	31,434	c 33,174	50.04	65.20	66.19	c 67.93
Maryland	115,683	162,431	184,251	229,947	46.70	58.13	60.37	66.61
District of Columbia	15,157	26,439	36,906	42,995	41.60	55.40	63.10	61.04
Virginia	131,088	220,736	342,269	367,817	32.34	45.00	60.51	63.19
West Virginia	76,999	142,850	193,064	d 215,665	49.47	69.21	75.27	d 75.53
North Carolina	a 115,000	252,612	322,533	d 370,920	a 31.23	53.87	56.39	d 59.50
South Carolina	66,056	134,072	201,260	258,183	27.28	40.56	47.08	54.55
Georgia	49,578	236,533	381,297	446,171	11.89	46.24	58.45	62.37
Florida	14,000	39,315	92,472	105,415	21.21	44.16	71.10	63.76
South Central Division:								
Kentucky	c 178,457	c 276,000	399,660	d 400,126	.....	.....	65.64	d 61.29
Tennessee	a 140,000	300,217	447,950	d 481,585	a 32.00	58.21	74.05	d 74.98
Alabama	141,312	179,490	301,615	319,526	40.36	42.60	55.83	51.40
Mississippi	117,000	236,654	334,158	f 350,615	40.60	61.29	70.62	f 67.10
Louisiana	57,639	77,642	130,253	169,947	24.78	25.87	31.58	39.84
Texas	63,504	a 220,000	466,872	d 616,568	21.00	a 42.40	59.50	d 58.96
Arkansas	69,927	81,972	223,071	316,270	40.29	30.81	55.41	68.72
Oklahoma	.....	.....	.....	79,309	.....	.....	.....	83.02
North Central Division:								
Ohio	719,372	729,499	797,439	825,650	84.04	76.69	76.54	75.92
Indiana	450,057	511,283	512,955	551,073	78.04	82.39	79.21	83.12
Illinois	672,787	704,041	778,319	920,425	81.01	74.61	71.97	70.91
Michigan	292,466	362,556	427,032	491,812	79.66	78.08	73.45	78.85
Wisconsin	265,285	299,457	351,723	426,565	73.92	73.78	69.77	68.90
Minnesota	113,983	180,248	280,960	371,880	75.92	75.87	74.59	75.63
Iowa	341,938	426,057	493,267	546,836	84.44	83.52	85.51	86.30
Missouri	330,070	482,986	620,314	673,152	56.03	68.85	74.43	71.27
North Dakota	a 1,660	13,718	35,543	d 57,088	a 39.26	41.68	71.26	d 68.87
South Dakota			78,043	d 89,001			81.04	d 88.65
Nebraska	23,265	92,549	240,300	266,275	58.79	68.48	75.35	78.16
Kansas	89,777	231,434	399,322	367,690	74.22	73.23	88.56	87.60
Western Division:								
Montana	1,657	4,270	16,980	31,436	70.24	63.77	71.14	75.86
Wyoming	a 450	2,907	7,052	d 11,582	a 45.34	77.44	54.46	d 54.46
Colorado	4,357	22,119	65,490	100,880	42.28	60.82	72.20	81.17
New Mexico	a 1,320	4,755	18,215	24,155	a 4.42	13.32	42.25	49.21
Arizona	0	4,212	7,989	13,361	.....	53.16	52.72	65.18
Utah	16,192	24,326	37,279	69,228	53.36	50.61	55.26	81.82
Nevada	3,106	9,045	7,387	6,890	53.97	79.73	73.80	75.38
Idaho	906	5,834	14,311	31,883	46.06	77.85	62.66	85.32
Washington	a 5,000	14,780	55,964	d 90,113	a 69.00	72.36	70.58	d 82.78
Oregon	21,000	37,533	63,254	d 87,212	67.73	75.02	74.78	d 85.40
California	91,332	158,765	221,756	257,929	63.63	73.37	77.38	74.15

a Approximately.
b Pupils of legal school age only.
c In 1891-92.
d In 1895-96.
e Highest number enrolled.
f In 1894-95.

TABLE 5.—*The school enrollment of 1896–97 classified by sex; per cent of the male and of the female school population enrolled; per cent of the total population enrolled.*

State or Territory.	Number of pupils enrolled.			Per cent of the school population (5 to 18 years of age) enrolled.			Per cent of the total population enrolled.
	Male.	Female.	Total.	Male.	Female.	Male and female.	
1	2	3	4	5	6	7	8
United States	a 7,447,748	a 7,204,744	14,652,492	70.00	69.01	69.50	20.53
North Atlantic Division	a 1,703,458	a 1,751,706	3,545,164	70.55	69.45	69.98	17.77
South Atlantic Division	a 1,040,825	a 1,029,462	2,070,287	62.37	62.74	62.56	21.27
South Central Division	a 1,385,970	a 1,338,976	2,724,946	61.37	60.91	61.14	21.22
North Central Division	a 2,859,313	a 2,728,143	5,587,456	77.43	75.53	76.48	22.41
Western Division	a 368,182	a 356,457	724,639	76.72	76.40	76.56	18.50
North Atlantic Division:							
Maine	.....	.....	132,139	.....	.....	81.72	20.10
New Hampshire	32,488	31,719	64,207	73.05	71.49	72.25	16.10
Vermont	33,467	31,882	65,349	79.07	80.17	79.60	19.62
Massachusetts	.....	.....	439,367	.....	.....	72.97	16.69
Rhode Island	31,559	30,778	62,337	65.72	63.54	64.63	15.75
Connecticut	.....	.....	143,921	.....	.....	72.80	17.14
New York	.....	.....	1,203,190	.....	.....	71.48	17.56
New Jersey	148,734	146,146	294,880	64.23	64.88	64.53	16.67
Pennsylvania	.....	.....	1,139,765	.....	.....	67.27	18.78
South Atlantic Division:							
Delaware (1891-92)	.....	.....	33,174	.....	.....	67.93	19.16
Maryland	.....	.....	229,947	.....	.....	66.61	19.50
District of Columbia	20,219	22,776	42,995	59.13	62.83	61.04	15.50
Virginia	185,847	181,970	367,817	63.33	63.04	63.19	21.58
West Virginia (1895–96)	113,554	102,111	215,665	78.65	72.32	75.53	25.40
North Carolina (1895–96)	188,178	182,742	370,920	*59.73	59.25	59.50	21.04
South Carolina	128,517	129,666	258,183	53.80	55.84	54.55	20.26
Georgia	219,123	227,048	446,171	60.56	64.21	62.37	22.14
Florida	53,138	52,277	105,415	64.04	63.49	63.76	21.19
South Central Division:							
Kentucky (1895–96)	204,607	195,519	400,126	62.03	60.54	61.29	20.06
Tennessee (1895–96)	247,635	233,950	481,585	75.75	74.17	74.98	25.60
Alabama	.....	.....	319,528	.....	.....	51.40	18.36
Mississippi (1894–95)	175,672	174,943	350,615	66.20	68.03	67.10	24.62
Louisiana	86,117	83,830	169,947	40.21	39.49	39.84	13.56
Texas (1895–96)	311,895	304,673	616,568	58.96	58.95	58.96	20.70
Arkansas	161,137	155,133	316,270	69.00	68.47	68.72	24.53
Oklahoma	36,361	33,948	70,309	82.98	83.05	83.02	25.06
North Central Division:							
Ohio	425,373	400,277	825,650	77.34	74.42	75.92	21.54
Indiana	281,850	269,223	551,073	84.28	81.98	83.12	24.58
Illinois	468,702	451,723	920,425	71.72	70.09	70.91	20.04
Michigan	248,108	243,704	491,812	78.90	78.82	78.85	21.90
Wisconsin	217,131	209,434	426,565	69.63	68.16	68.90	20.59
Minnesota	.....	.....	371,889	.....	.....	75.63	21.88
Iowa	.....	.....	546,836	.....	.....	86.30	26.03
Missouri	343,556	329,596	673,152	72.12	70.43	71.27	22.17
North Dakota (1895–96)	30,102	26,966	57,068	70.27	67.37	68.87	18.80
South Dakota (1895–96)	46,737	42,264	89,001	90.98	86.20	88.65	25.96
Nebraska	136,070	130,205	266,275	78.20	78.10	78.16	23.54
Kansas	191,644	176,046	367,690	89.55	85.56	87.60	27.67
Western Division:							
Montana	.....	.....	31,436	.....	.....	75.86	13.70
Wyoming (1895–96)	5,865	5,717	11,582	53.25	55.73	54.46	11.62
Colorado	a 51,720	a 49,160	100,880	82.30	79.98	81.17	17.86
New Mexico	a 13,622	a 10,533	24,155	54.36	43.84	49.21	13.81
Arizona	a 7,037	a 6,324	13,361	67.92	62.37	65.18	16.57
Utah	a 34,737	a 34,491	69,228	81.15	82.50	81.82	28.55
Nevada	3,499	3,361	6,860	75.80	74.95	75.38	16.49
Idaho	16,221	15,662	31,883	84.40	86.26	85.32	23.09
Washington (1895–96)	45,859	44,254	90,113	82.28	83.37	82.78	18.79
Oregon (1895–96)	43,848	43,364	87,212	85.00	85.84	85.40	23.03
California	129,797	128,132	257,929	73.82	74.43	74.15	17.59

a Approximately.

TABLE 6.—*Per cent of the school population (i. e., children 5 to 18 years of age) enrolled in the public schools, for a period of years.*

Year.	United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
1870–71	61.45	77.95	30.51	34.17	76.87	54.77
1871–72	62.20	77.33	32.27	37.94	77.04	54.43
1872–73	62.36	76.79	35.86	38.67	75.97	57.52
1873–74	64.40	77.77	42.10	40.82	76.98	61.04
1874–75	65.54	78.59	44.61	42.47	77.54	64.39
1875–76	64.70	78.55	46.72	37.36	77.05	66.37
1876–77	63.92	76.83	47.02	38.51	75.00	66.12
1877–78	65.75	77.09	48.85	43.50	77.38	66.26
1878–79	64.64	76.18	46.72	44.71	75.28	65.63
1879–80	65.50	75.17	50.74	46.43	75.84	64.96
1880–81	65.03	74.28	51.49	47.03	74.59	64.82
1881–82	65.03	74.56	51.90	47.02	74.15	65.93
1882–83	66.39	74.15	54.30	50.68	75.13	67.05
1883–84	66.96	72.83	56.25	53.59	75.06	68.01
1884–85	67.96	73.23	57.17	56.57	75.46	68.53
1885–86	68.14	72.63	57.68	56.82	76.08	68.03
1886–87	67.98	72.23	58.98	56.21	75.77	67.97
1887–88	68.33	71.60	58.68	58.67	75.96	68.53
1888–89	68.20	70.60	58.40	58.28	76.63	69.39
1889–90	68.61	70.45	59.22	60.14	76.46	70.01
1890–91	69.03	69.85	59.80	62.51	76.00	73.28
1891–92	69.06	69.98	58.88	63.14	75.85	75.32
1892–93	68.72	68.64	60.93	62.39	75.52	73.51
1893–94	69.50	69.70	61.73	63.55	75.93	73.36
1894–95	69.68	71.02	61.07	61.97	76.52	76.70
1895–96 *a*	68.93	69.97	60.83	60.81	75.75	77.00
1896–97 *a*	69.50	69.98	62.56	61.14	76.48	76.56

a Subject to correction.

TABLE 7.—*The average daily attendance at various periods, and its relation in 1896–97 to the enrollment.*

State or Territory.	Average number of pupils attending school each day.				Number in daily attendance for each 100 enrolled in 1896-97.
	1870-71.	1879-80.	1889-90.	1896-97.	
1	2	3	4	5	6
United States	4,545,317	6,144,143	8,153,635	10,089,620	68.87
North Atlantic Division	1,627,208	1,824,487	2,036,459	2,529,086	71.33
South Atlantic Division	368,111	776,798	1,126,683	1,274,579	61.57
South Central Division	535,632	902,767	1,467,649	1,840,001	67.52
North Central Division	1,911,720	2,451,167	3,188,732	3,928,779	70.32
Western Division	102,646	188,924	334,112	517,175	71.37
North Atlantic Division:					
Maine	100,392	103,115	98,364	96,571	73.10
New Hampshire	48,150	48,966	41,526	47,717	a 74.33
Vermont	b 44,100	48,606	45,887	50,465	77.23
Massachusetts	201,750	233,127	273,910	334,945	76.20
Rhode Island	22,485	27,217	33,905	49,224	78.96
Connecticut	62,683	73,546	83,656	101,063	70.21
New York	493,648	573,089	642,984	820,254	68.16
New Jersey	86,812	115,194	133,286	191,776	65.03
Pennsylvania	567,188	601,627	682,941	837,071	73.43
South Atlantic Division:					
Delaware	b 12,700	17,439	19,649	b c 22,693	b c 68.40
Maryland	56,435	85,778	102,351	133,627	58.11
District of Columbia	10,361	20,637	28,184	33,313	77.48
Virginia	77,402	128,404	198,290	213,421	58.03
West Virginia	51,336	91,604	121,700	a 141,081	a 65.40
North Carolina	b 73,000	170,100	203,100	a 231,725	a 62.47
South Carolina	b 44,700	b 90,600	147,799	182,559	70.72
Georgia	31,377	145,190	240,791	246,683	55.29
Florida	b 10,900	27,046	64,819	69,477	65.92
South Central Division:					
Kentucky	120,866	178,000	225,739	a 286,861	a 71.70
Tennessee	b 89,000	208,528	323,548	a 338,176	a 70.23
Alabama	107,666	117,978	182,467	b 213,000	b 66.67
Mississippi	90,000	156,761	207,704	d 202,683	d 57.81
Louisiana	b 40,500	b 54,800	87,536	124,123	73.05
Texas	b 41,000	b 132,000	291,941	a 440,249	a 71.40
Arkansas	b 46,600	b 54,700	b 148,714	195,509	61.81
Oklahoma				b 39,400	b 56.03
North Central Division:					
Ohio	432,452	476,279	549,269	607,304	73.55
Indiana	295,071	321,659	342,275	402,747	73.08
Illinois	341,686	431,638	538,310	705,481	76.65
Michigan	b 193,000	b 240,000	b 282,000	b 347,219	b 70.60
Wisconsin	b 132,000	b 156,000	200,457	273,958	64.23
Minnesota	50,694	b 78,400	127,025	235,497	63.33
Iowa	211,562	259,836	306,309	347,620	63.56
Missouri	187,024	b 281,000	384,627	490,431	72.87
North Dakota	b 1,040	8,530	20,694	a 38,478	a 67.40
South Dakota			48,327	a b 54,600	a b 61.34
Nebraska	b 14,300	60,156	146,139	171,442	64.39
Kansas	52,891	137,069	243,300	254,002	69.07
Western Division:					
Montana	b 1,100	b 3,000	10,596	b 21,200	b 67.43
Wyoming	b 250	1,920	b 4,700	a b 7,700	a b 66.48
Colorado	2,611	12,618	38,715	b 69,600	b 69.00
New Mexico	b 880	3,150	b 13,000	19,349	80.12
Arizona		2,847	4,702	10,439	78.14
Utah	12,819	17,178	20,967	48,315	69.77
Nevada	1,800	5,401	5,064	4,145	60.43
Idaho	b 600	3,863	b 9,500	22,645	71.02
Washington	b 3,300	10,546	36,946	a 63,212	a 70.15
Oregon	b 15,000	27,435	43,333	a 61,721	a 70.78
California	64,286	100,966	146,589	188,849	73.22

a In 1895–96. b Approximately. c In 1891–92. d In 1894–95.

TABLE 8.—*(1) Average length of school term at various periods. (2) Aggregate number of days' schooling given to all pupils. (3) The same compared with the school population and the enrollment (columns 7 and 8).*

State or Territory.	Average number of days the schools were kept during the year.[a]				Aggregate number of days' schooling given in 1896-97.	Average number of days' schooling given for every child 5 to 18 years of age in 1896-97.	Average number of days attended by each pupil enrolled in 1896-97.
	1870-71.	1879-80.	1889-90.	1896-97.			
1	2	3	4	5	6	7	8
United States	132.1	130.3	134.7	140.4	1,416,781,583	67.2	94.7
North Atlantic Division	152.0	159.2	166.6	172.9	437,274,905	86.3	123.4
South Atlantic Division	97.4	92.4	99.9	111.2	141,067,632	42.8	68.4
South Central Division	91.6	79.2	88.2	92.8	170,733,024	38.3	62.6
North Central Division	133.9	139.8	148.0	151.2	593,938,685	81.3	106.3
Western Division	119.2	129.2	135.0	141.5	73,167,337	77.3	101.0
North Atlantic Division:							
Maine	98	100	112	b136	c13,133,656	c81.2	c99.4
New Hampshire	70	105.3	117.7	134.55	6,420,322	72.3	100.0
Vermont	115.6	125.5	136	154	7,771,731	94.7	118.9
Massachusetts	169	177	177	186	62,209,770	103.5	141.8
Rhode Island	170	184	188	190	8,586,160	89.0	137.7
Connecticut	172.4	179	182.5	187.45	18,944,259	95.8	131.6
New York	178	178.5	186.5	174	152,431,953	90.6	126.7
New Jersey	178	192	192	183	35,095,008	76.8	119.0
Pennsylvania	127.2	133.4	147.6	158.4	132,592,046	78.3	116.2
South Atlantic Division:							
Delaware	132	158	166	cd160	cd3,640,881	cd74.6	cd109.7
Maryland	183	187	184	182	24,320,114	70.5	105.8
District of Columbia	200	193	178	183	6,072,547	86.2	141.3
Virginia	93.2	112.8	118.2	120	25,610,520	44.0	69.6
West Virginia	76.8	90	97	b111	b15,659,991	b54.8	b72.6
North Carolina	c50	50	59.25	b65.4	b15,154,815	b24.3	b40.9
South Carolina	c100	70	69.6	83.3	15,213,821	32.1	58.9
Georgia	59	c65	83.3	116.9	28,837,243	41.3	64.6
Florida	.....	.....	c120	103	7,157,700	43.3	67.9
South Central Division:							
Kentucky	c110	102	94	ab115.0	ab32,989,015	ab50.5	ab82.5
Tennessee	c77	68	86	b90.2	b30,503,475	b47.5	b63.3
Alabama	66.5	81.3	73.5	74	c15,762,000	c25.4	c49.3
Mississippi	110	74.5	c86	e105.4	e21,362,788	e40.9	e60.9
Louisiana	c65	78.8	100.6	106	13,157,038	30.8	77.4
Texas	c140	71.7	100	b92.8	b40,626,164	b38.9	b65.9
Arkansas	.....	.....	c75	67	13,011,124	28.3	41.1
Oklahoma	.....	.....	.....	b84.3	c3,321,420	c39.2	c47.2
North Central Division:							
Ohio	165	152	166.5	164	99,840,778	91.8	120.9
Indiana	98.5	136	130	f142.5	c57,391,447	c86.6	c104.1
Illinois	146.7	150	155.4	157.9	111,395,450	85.8	121.0
Michigan	140	150	156	161	55,902,259	89.6	113.7
Wisconsin	155	165	158.6	160.5	43,960,000	71.0	103.1
Minnesota	c83	94	128	b155.6	c36,643,333	c74.5	c98.5
Iowa	130	148	156	162	56,314,440	88.9	103.0
Missouri	90	c104	129.4	141	61,340,900	65.0	91.1
North Dakota	c75	c96	113	b107.5	b4,139,365	b49.9	b72.5
South Dakota			145	bc138.4	bc7,559,529	bc75.3	bc84.9
Nebraska	72	82	140	129	27,408,832	80.5	103.0
Kansas	116	120	135	126.15	32,042,352	76.3	87.1
Western Division:							
Montana	c89	96	142.7	b149.2	c3,308,904	c79.9	c105.3
Wyoming	c200	119	c120	bc90	bc693,000	bc32.6	bc59.8
Colorado	92	c132	144.4	b159.7	c11,115,120	c89.4	c110.2
New Mexico	c111	111	c67	92.2	1,783,978	36.4	73.9
Arizona	0	109	126	127	1,329,929	64.9	99.6
Utah	152	128	133	152	7,343,880	86.8	106.1
Nevada	142	143	140	154	638,330	70.2	93.1
Idaho	c45	94	c69.8	88	1,992,760	53.3	62.5
Washington	c80	c91	97.2	b89.2	b5,638,510	b51.8	b62.6
Oregon	c90	90	118.2	bc109	bc6,727,589	b 65.9	bc77.1
California	123	146.6	157.9	172.6	32,595,337	93.7	126.4

a Certain States report their school term in months. These have been uniformly reduced to days by multiplying by 20.
b In 1895-96.
c Approximately.
d In 1891-92.
e In 1894-95.
f In 1893-94.

Observations on Table 8.—The "aggregate number of days' schooling given" to all pupils (see column 6), which is the same thing as the aggregate number of days attended by all the pupils, has been computed for those States which do not make an explicit report of this item by multiplying the average daily attendance of pupils by the average length of school term in days.

Conversely, the average length of school term (column 5) for the United States as a whole and for each of its geographical divisions has been obtained by dividing the aggregate number of days attended by the average daily attendance.

By this method the school term of each State, in computing the average term for a number of States, is in fact given a weight proportioned to the school attendance of the State, as should be done under a correct interpretation of the expression "Average length of school term." The result might more properly be called "Average length of attendance," which is essentially what it is desired to know.

A method which has been in use in some States for finding the average school term. of a county, for instance, is to weight the different school terms of the towns or districts the county is composed of by the number of schools in each. In other words, the total number of days (or months) all the schools of a county were kept is divided by the total number of schools to get the average time each one was kept. So, in finding the average term for the State, the school is taken as the unit instead of the pupil. When the schools differ much in size (number of pupils), as they do in all mixed urban and rural systems, varying from some half a dozen to 500 or more pupils each, the average term obtained by this method varies considerably from that obtained by the Bureau's method. The long terms of the large city schools not being given their proper weight, the resulting average is too small. The same objection applies still more forcibly to weighting the school terms of the different counties or towns by the number of school districts in each.

Still another method is to add together the school terms of the different counties or towns and divide by the number of such counties or towns; i. e., the simple arithmetical mean is taken. An example of this occurs in a school report, where it is stated that 14,193 pupils attended 185 days and 856 other pupils attended 160 days, while the average time the whole 15,049 pupils attended is computed at 172½ days. although nearly all (16 out of every 17) attended 185 days. This method, if it can be so called, gives altogether too short an average term, and nothing can be said in defense of it. It is as if, wishing to get the population per square mile of Minnesota and Dakota combined, we said, Minnesota, 9.86; Dakota, 0.92; average number of persons per square mile in the combined territory $(0.92+9.86)\div 2=5.39$, instead of dividing the total population of the two States by the combined area in square miles.

The "aggregate number of days' attendance" is a statistical item of the utmost simplicity and of great value, about the meaning of which there can be little or no difference of opinion. Every teacher's register that records the number of pupils present each day in any school, as they all presumably do, contains the data for ascertaining it for that school for the school year by the simple process of addition or summing up.

TABLE 9.—(*1*) *Length of school term.* (*2*) *The aggregate number of days' schooling given compared with the school population.*

Year.	Average length of school term, in days.						Average number of days' schooling given for every child 5 to 18 years of age.					
	The United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.	The United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
1870–71	132.1	152.0	97.4	91.6	133.9	119.2	48.7	70.2	18.1	21.8	59.6	45.9
1871–72	133.4	151.9	103.4	97.7	136.1	121.8	49.5	68.9	20.3	25.8	59.8	46.0
1872–73	129.1	154.6	97.4	89.1	129.6	118.3	47.8	67.9	21.7	23.4	56.8	45.0
1873–74	128.8	154.8	95.6	81.1	132.6	119.0	49.6	70.4	24.5	21.9	59.8	46.1
1874–75	130.4	158.7	95.2	81.0	134.6	132.5	51.0	72.9	26.1	23.5	60.2	53.6
1875–76	133.1	158.0	95.6	82.5	139.1	130.3	51.4	73.7	26.8	20.1	62.2	54.4
1876–77	132.1	157.2	91.4	80.3	139.8	130.1	51.1	73.6	26.3	19.8	62.3	54.3
1877–78	132.0	157.6	89.7	86.7	140.1	129.9	53.2	75.6	26.8	24.3	64.3	54.5
1878–79	130.2	160.1	88.6	81.9	136.4	132.0	52.0	75.0	25.7	23.9	62.3	56.7
1879–80	130.3	159.2	92.4	79.2	139.8	129.2	53.1	74.5	29.3	24.2	64.4	54.9
1880–81	130.1	158.7	92.4	82.1	138.8	133.8	52.0	72.2	28.5	25.0	62.7	56.9
1881–82	131.2	160.6	95.9	82.5	137.1	136.2	52.9	73.3	30.6	25.6	63.2	58.0
1882–83	129.8	161.0	95.9	82.5	137.1	132.6	53.8	74.4	32.0	26.8	63.9	57.3
1883–84	129.1	156.0	95.6	85.9	138.6	133.8	55.5	72.5	32.7	30.0	67.7	61.6
1884–85	130.7	163.1	93.4	87.5	139.1	131.8	56.8	77.2	33.7	31.4	67.3	58.3
1885–86	130.4	161 6	93.4	86.9	140.4	130.8	57.3	76.7	33.7	32.0	68.7	59.6
1886–87	131.3	165.9	95.3	87.5	139.5	131.6	57.7	77.8	34.8	32.1	68.7	59.1
1887–88	132.3	164.4	95.7	87.6	144.0	130.7	58.7	76.8	35.5	33.6	71.3	57.3
1888–89	133.7	164.1	95.0	88.9	147.5	135.7	58.9	76.7	35.4	34.0	71.6	61.7
1889–90	134.7	166.6	99.9	88.2	148.0	135.0	59.2	76.8	37.3	33.9	71.9	61.3
1890–91	135.7	168.1	103.8	92.0	145.8	136.9	60.4	77.9	37.9	35.5	73.0	64.0
1891–92	136.9	169.1	105.3	94.1	146.8	139.1	61.1	78.5	37.8	37.1	73.1	68.7
1892–93	136.3	169.6	103.4	93.0	146.6	138.8	61.4	78.5	38.6	36.6	74.4	67.5
1893–94	139.5	172.3	108.3	97.5	150.2	137.1	64.2	81.3	41.5	39.8	76.9	68.5
1894–95	139.5	172.8	106.5	92.8	150.8	142.4	65.1	84.2	41.2	35.7	79.3	75.0
1895–96 *a*	140.5	175.5	107.8	93.0	151.6	142.0	65.7	84.8	41.0	37.7	79.4	76.1
1896–97 *a*	140.4	172.9	111.2	92.8	151.2	141.5	67.2	86.3	42.8	38.3	81.3	77.3

a Subject to correction.

TABLE 10.—*Number and sex of teachers—Percentage of male teachers.*

State or Territory.	Whole number of different teachers employed.			Percentage of male teachers.			
	Male.	Female.	Total.	1870–71.	1879–80.	1889–90.	1896–97.
1	2	3	4	5	6	7	8
United States	131,386	271,947	403,333	41.0	42.8	34.5	32.6
North Atlantic Division	18,731	79,503	98,234	26.2	28.8	20.0	19.1
South Atlantic Division	20,423	26,130	46,553	63.8	62.5	49.1	43.9
South Central Division	32,011	28,464	60,475	67.5	67.2	57.5	52.9
North Central Division	53,994	122,499	176,493	43.2	41.7	32.4	30.6
Western Division	6,227	15,351	21,578	45.0	40.3	31.1	28.9
North Atlantic Division:							
Maine	a1,257	a5,470	6,727	a24.4	a27.2	a16.0	a18.7
New Hampshire	392	2,509	2,711	15.9	16.8	9.8	7.4
Vermont	346	2,035	2,381	16.5	16.8	12.0	14.5
Massachusetts	1,120	11,723	12,843	12.7	13.2	9.8	8.7
Rhode Island	198	1,619	1,817	a20.4	20.2	12.6	10.9
Connecticut a	b442	b3,630	b4,072	a22.1	a22.8	a13.4	b10.9
New York	5,461	28,924	34,385	22.9	26.0	16.9	15.9
New Jersey	804	5,065	5,869	32.5	28.5	18.4	13.7
Pennsylvania	8,901	18,528	27,429	42.8	45.5	34.2	32.4
South Atlantic Division:							
Delaware	ac218	ac622	c840	a29.9	a46.6	a31.0	ac24.0
Maryland	1,113	3,723	4,836	45.0	42.6	27.8	23.0
District of Columbia	147	924	1,071	8.2	7.8	13.0	13.7
Virginia	3,013	5,562	8,575	64.5	61.8	41.5	35.1
West Virginia	b3,828	b2,626	b6,454	79.0	75.2	63.4	b59.3
North Carolina	b4,294	b3,591	b7,885	a73.2	a71.3	59.1	b54.5
South Carolina	2,245	2,728	4,973	62.4	59.5	49.6	45.1
Georgia	a4,485	a4,776	9,261	71.4	a65.2	53.3	a48.4
Florida	1,080	1,578	2,658	a65.7	61.6	48.0	40.6
South Central Division:							
Kentucky	b4,962	b5,247	b10,209	a66.0	64.6	49.8	b48.6
Tennessee	b5,121	b4,014	b9,135	a75.0	74.4	61.8	b56.1
Alabama	a4,536	a2,587	7,123	66.8	63.8	62.9	a63.7
Mississippi	d3,647	d4,208	d7,855	a60.8	61.2	49.6	d46.4
Louisiana	1,425	2,257	3,682	50.9	46.1	44.7	38.7
Texas	b6,815	b6,402	b13,217	a77.3	a75.0	61.1	b51.6
Arkansas	4,070	2,511	7,181	a75.6	78.4	68.5	65.0
Oklahoma	835	1,238	2,073	.....	.....	.....	40.3
North Central Division:							
Ohio	10,316	14,900	25,216	43.2	47.5	43.1	40.9
Indiana	7,115	7,937	15,052	60.5	57.5	51.1	47.3
Illinois	7,196	18,345	25,541	43.5	39.7	32.5	28.2
Michigan	3,563	12,038	15,601	26.3	29.2	22.3	22.8
Wisconsin	2,502	9,875	12,377	a28.8	28.9	19.8	20.2
Minnesota	2,445	8,793	11,238	33.7	35.9	23.9	21.8
Iowa	5,824	22,208	28,032	39.0	33.6	20.6	20.8
Missouri	5,972	8,966	14,938	65.3	58.1	44.4	40.0
North Dakota	b1,043	b1,984	b3,027	a24.7	a40.8	28.3	b36.1
South Dakota	b1,321	b3,187	b4,508			29.0	b29.3
Nebraska	2,514	6,833	9,347	51.9	40.7	27.1	26.9
Kansas	4,183	7,433	11,616	47.2	45.1	40.8	36.0
Western Division:							
Montana	216	804	1,020	a60.3	38.5	22.9	21.2
Wyoming	b105	b360	b465	a28.6	44.3	22.4	b22.6
Colorado	a780	a2,340	3,120	48.8	36.4	26.2	a25.0
New Mexico	328	277	605	a91.7	78.0	a62.2	54.2
Arizona	116	238	354	.....	47.5	38.8	32.8
Utah	484	693	1,177	55.0	54.5	46.6	41.1
Nevada	39	265	304	32.4	46.7	16.3	12.8
Idaho	208	495	793	a64.3	57.4	a33.4	37.6
Washington	b1,184	b2,061	b3,245	a46.5	37.4	40.6	b36.5
Oregon	b1,287	b2,030	b3,317	a51.7	48.3	43.3	b38.8
California	1,390	5,788	7,178	40.0	33.6	21.4	19.4

a Approximately. *b* In 1895–96. *c* In 1891–92. *d* In 1894–95.

TABLE 11.—*Showing, for a period of years, what per cent of the whole number of teachers were males.*

Year.	United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
1870–71	41.0	26.2	63.8	67.5	43.2	45.0
1871–72	41.3	26.1	63.4	68.3	43.4	43.5
1872–73	41.2	26.1	63.3	68.9	42.8	43.0
1873–74	41.6	26.8	62.9	69.4	42.5	44.5
1874–75	42.2	26.7	63.3	69.1	42.5	44.1
1875–76	42.3	27.9	63.1	68.0	42.4	45.3
1876–77	42.8	28.2	62.7	67.8	43.0	44.4
1877–78	43.1	28.5	62.6	67.7	42.8	43.0
1878–79	43.3	29.1	62.8	67.8	42.7	42.3
1879–80	42.8	28.8	62.5	67.2	41.7	40.3
1880–81	41.7	27.4	61.4	67.0	39.9	37.3
1881–82	39.7	25.7	59.4	65.8	37.7	37.1
1882–83	38.2	23.9	57.3	63.5	35.9	35.9
1883–84	37.9	23.4	56.5	63.2	35.3	34.5
1884–85	37.4	22.5	55.6	62.9	34.8	34.6
1885–86	37.4	22.4	54.5	62.2	35.2	34.2
1886–87	37.4	22.6	53.4	63.5	34.8	34.5
1887–88	36.4	21.6	53.2	60.7	34.0	30.8
1888–89	34.9	20.2	51.7	58.8	32.3	31.2
1889–90	34.5	20.0	49.1	57.5	32.4	31.1
1890–91	33.5	19.4	47.0	56.4	31.4	30.4
1891–92	32.5	18.9	46.3	55.5	29.7	30.0
1892–93	32.0	19.1	45.2	55.7	28.7	29.3
1893–94	32.2	18.9	45.1	53.7	29.6	29.6
1894–95	32.6	18.8	45.0	53.1	30.6	29.6
1895–96[a]	32.6	19.2	44.7	52.8	30.4	29.7
1896–97[a]	32.6	19.1	43.9	52.9	30.6	28.9

[a] Subject to correction.

TABLE 12.—*Teachers' salaries—Number of schoolhouses—Value of school property.*

State or Territory.	Average monthly salaries of teachers.		Number of buildings used as schoolhouses.	Estimated value of all school property.
	Males.	Females.		
1	2	3	4	5
United States	$44.62	$38.38	246,828	$469,069,086
North Atlantic Division	55.35	40.85	42,294	187,006,486
South Atlantic Division	31.11	30.80	30,694	20,274,814
South Central Division	41.21	34.50	47,658	21,002,125
North Central Division	45.14	37.45	107,542	205,177,995
Western Division	59.42	52.95	12,640	35,607,666
North Atlantic Division:				
Maine	40.64	25.88	4,162	4,081,951
New Hampshire	37.10	27.64	1,917	3,284,121
Vermont	38.52	26.84	1,912	1,500,000
Massachusetts	144.80	52.20	a 4,501	36,780,727
Rhode Island	99.24	50.48	521	4,414,512
Connecticut	88.77	42.70	1,627	9,344,690
New York			11,208	66,077,000
New Jersey	81.39	48.19	1,766	12,605,882
Pennsylvania	43.72	38.11	b 14,620	48,917,003
South Atlantic Division:				
Delaware	cd 36.60	cd 34.08	e 497	e 904,426
Maryland	cf 48.00	cf 40.40	2,955	c 4,350,000
District of Columbia	cg 111.62	cg 69.00	119	3,500,000
Virginia	31.98	26.67	7,087	3,090,777
West Virginia b			5,475	3,227,141
North Carolina b	25.38	21.40	6,093	1,093,165
South Carolina	25.18	24.29	4,189	845,596
Georgia			7,531	2,725,309
Florida b	37.81	32.48	2,238	628,340
South Central Division:				
Kentucky b	44.03	37.18	8,211	4,216,750
Tennessee	cf 31.88	cf 26.18	b 7,152	b 3,133,789
Alabama g			6,687	1,373,000
Mississippi f	31.70	26.55	6,264	1,636,055
Louisiana	31.58	29.98	3,017	1,025,000
Texas b	56.71	46.48	10,126	7,289,184
Arkansas	37.50	32.50	4,505	1,845,375
Oklahoma	30.50	27.00	1,696	482,972
North Central Division:				
Ohio	35.00	29.00	13,091	40,043,312
Indiana	b 48.25	b 40.25	10,053	g 18,867,494
Illinois	59.64	50.69	12,682	45,143,755
Michigan	47.79	34.95	7,917	17,977,447
Wisconsin	67.90	35.50	6,907	11,648,000
Minnesota	45.50	34.78	6,953	15,350,000
Iowa	37.01	31.45	13,744	16,355,842
Missouri	42.50	49.50	14,413	16,718,410
North Dakota b	40.29	34.84	2,032	1,926,420
South Dakota b			3,739	2,929,744
Nebraska	42.57	36.14	6,695	8,822,340
Kansas	39.26	34.29	9,316	9,395,231
Western Division:				
Montana	68.58	52.01	628	1,663,245
Wyoming b	58.04	45.89	306	428,706
Colorado	b 64.07	b 53.74	1,690	4,093,304
New Mexico			a 492	b 264,430
Arizona	b 72.90	b 66.26	a 293	450,000
Utah	59.44	42.43	a 942	2,524,989
Nevada	98.00	61.00	228	461,665
Idaho	61.00	41.00	626	698,606
Washington b	44.56	38.14	1,890	4,837,413
Oregon b	45.16	37.42	1,940	2,988,312
California	g 80.19	g 65.42	3,695	17,196,996

a Number of schools.
b 1895-96.
c Approximately.
d In 1889-90.
e In 1891-92.
f In 1894-95.
g 1893-94.

Average salaries.—In computing (for Table 12) the average monthly wages of all the male (or female) teachers in a group of States, the average wages of each of the States in question is multiplied by the corresponding number of teachers. The sum of the resulting products is then divided by the sum of the teachers, and the quotient is the average wages of all. Each rate of wages thus receives its due weight.

To illustrate the principle: If 48 teachers receive an average of $72.20 per month, they all receive in a month $3,466; if 473 other teachers receive an average of $48.60 per month, these together receive in a month $22,988; all the 521 teachers combined therefore receive per month $26,454, or an average of $50.77.

Attention is called to this matter for the reason that the practice of taking the arithmetical mean of a number of rates of wages (the mean is $60.40 in the above case) in order to get the average of all is so common as to vitiate, to a considerable extent, the published statistics of average wages.

TABLE 13.—*Private schools (elementary and secondary).*

State or Territory.	Number of pupils enrolled in private schools.	Total public and private enrollment.	Per cent of pupils in private schools.
1	2	3	4
United States	a 1,317,090	15,939,492	8.25
North Atlantic Division	a 544,300	4,089,464	13.31
South Atlantic Division	a 106,700	2,176,987	4.90
South Central Division	a 166,900	2,891,846	5.77
North Central Division	a 451,700	6,039,156	7.48
Western Division	a 47,400	772,039	6.14
North Atlantic Division:			
Maine			
New Hampshire (1893-94)	7,425	69,862	10.63
Vermont	9,473	74,822	12.66
Massachusetts	68,788	508,155	13.54
Rhode Island	14,883	77,220	19.27
Connecticut	27,227	171,148	15.91
New York	173,309	1,376,568	12.59
New Jersey	47,535	342,415	13.88
Pennsylvania			
South Atlantic Division:			
Delaware			
Maryland			
District of Columbia (1895-96)	a 5,000	47,464	10.55
Virginia	a 25,000	392,817	6.38
West Virginia (1893-94)	1,894	220,709	.86
North Carolina (1891-92)	26,198	361,556	7.25
South Carolina			
Georgia (1893-94)	14,151	450,833	3.14
Florida			
South Central Division:			
Kentucky (1894-95)	26,400	494,371	5.34
Tennessee (1891-92)	45,428	532,935	8.53
Alabama			
Mississippi (1894-95)	21,233	371,818	5.70
Louisiana			
Texas			
Arkansas	6,240	322,516	1.94
Oklahoma			
North Central Division:			
Ohio			
Indiana			
Illinois	138,542	1,058,967	13.08
Michigan	43,601	535,413	8.14
Wisconsin	26,881	453,446	5.93
Minnesota (1894-95)	20,073	372,165	5.39
Iowa (1895-96)	36,120	579,181	6.24
Missouri	18,804	691,956	2.72
North Dakota (1893-94)	400	47,761	.84
South Dakota (1893-94)	1,888	89,914	2.10
Nebraska			
Kansas			
Western Division:			
Montana	1,761	33,197	5.30
Wyoming (1894-95)	175	11,428	1.53
Colorado (1892-93)	3,813	80,902	4.71
New Mexico	3,600	27,755	12.97
Arizona	a 1,000	14,361	6.96
Utah	2,457	71,685	3.43
Nevada	a 300	7,160	4.19
Idaho			
Washington (1895-96)	4,548	94,661	4.81
Oregon (1895-96)	5,290	92,511	5.73
California	20,770	278,699	7.45

a Approximately.

TABLE 14.—*School moneys received.*

State or Territory.	Income of State school funds and rent of school lands.	From taxation.			From other sources, State and local.	Total revenue (excluding balances on hand, and proceeds of bond sales).
		From State taxes.	From local taxes.	Total from taxation.		
1	2	3	4	5	6	7
United States	$7,846,648	$35,062,533	$127,960,761	$163,023,294	$17,771,301	$188,641,243
North Atlantic Division	1,044,074	12,590,312	49,878,330	62,468,642	10,456,761	73,969,477
South Atlantic Division	451,514	4,053,785	5,816,827	9,870,612	923,545	11,245,671
South Central Division	851,903	8,046,229	4,615,751	12,661,980	534,845	13,451,728
North Central Division	4,750,541	7,272,916	59,871,812	67,144,728	4,059,986	76,855,255
Western Division	745,616	3,099,291	8,378,041	11,477,332	796,164	13,119,112
North Atlantic Division:						
Maine	51,375	513,384	1,049,032	1,562,416	0	1,613,791
N. Hampshire (1895–96)	12,961	58,831	857,388	916,219	63,380	992,540
Vermont	100,693	84,853	704,339	789,192	19,907	909,782
Massachusetts	186,036	0	12,195,750	12,195,750	8,852	12,390,638
Rhode Island	8,405	119,876	1,261,891	1,381,767	59,620	1,449,792
Connecticut	151,452	290,819	2,176,200	2,467,019	118,479	2,736,950
New York	277,809	3,827,704	15,979,451	19,807,155	7,048,383	27,133,347
New Jersey	255,353	2,194,845	3,032,756	5,227,601	10,125	5,493,079
Pennsylvania	0	5,500,000	12,621,523	18,121,523	a3,128,035	21,249,558
South Atlantic Division:						
Delaware (1889–90) b	60,000	c6,000	209,000	215,000	0	275,000
Maryland	45,957	520,125	1,509,595	2,029,720	181,118	2,256,795
District of Columbia	0	0	d1,131,648	1,131,648	0	1,131,648
Virginia	46,058	937,512	840,241	1,777,753	39,893	1,863,704
W. Virginia (1895–96)	b50,000	330,995	1,219,976	1,550,971	211,530	1,812,501
N. Carolina (1895–96)	0	705,166	15,258	720,424	103,814	824,238
South Carolina	0	511,259	85,033	596,292	179,214	775,506
Georgia	212,046	913,000	358,354	1,271,354	150,198	1,633,598
Florida (1895–96)	37,453	129,728	447,722	577,450	57,778	672,681
South Central Division:						
Kentucky (1895–96)	138,938	1,804,360	1,079,254	2,883,614	5,880	3,028,432
Tennessee (1895–96)	136,445	1,340,219	(e)	1,340,219	205,134	1,671,798
Alabama (1894–95)	115,887	513,674	f141,861	655,535	f9,531	780,953
Mississippi (1894–95)	77,946	923,500	176,256	1,099,756	44,706	1,222,408
Louisiana	49,989	234,199	625,407	859,606	80,291	789,886
Texas (1895–96)	g335,698	2,839,751	801,623	3,641,374	114,230	4,091,302
Arkansas	0	328,803	951,667	1,280,470	51,618	1,332,088
Oklahoma	0	71,723	239,683	311,406	23,455	334,861
North Central Division:						
Ohio	240,464	1,761,035	10,307,464	12,068,499	518,938	12,827,901
Indiana (1895–96)	604,056	1,708,008	3,911,440	5,619,448	413,252	6,636,756
Illinois	836,632	1,000,000	13,820,529	14,820,529	412,322	16,059,483
Michigan (1895–96)	b312,000	b589,180	4,804,653	5,393,819	446,449	6,152,268
Wisconsin	259,562	600,000	3,914,335	4,514,335	396,998	5,170,895
Minnesota	551,406	610,744	3,125,984	3,736,728	874,376	5,162,510
Iowa	237,615	0	7,421,465	7,421,465	896,473	8,555,553
Missouri	647,176	691,117	5,438,374	6,129,491	49,434	6,826,101
N. Dakota (1895–96)	153,551	154,964	620,903	775,867	88,221	1,017,639
S. Dakota (1895–96)	91,500	0	1,181,037	1,181,037	52,928	1,325,465
Nebraska	451,487	157,862	1,989,572	2,147,434	709,022	3,307,943
Kansas	375,092	0	3,336,076	3,336,076	101,573	3,812,741
Western Division:						
Montana	17,732	0	732,447	732,447	27,714	777,893
Wyoming (1895–96)	24,888	0	189,144	189,144	3,587	217,619
Colorado (1895–96)	78,321	0	1,993,384	1,993,384	h417,413	2,489,118
New Mexico	0	0	133,089	133,089	20,051	153,140
Arizona	0	7,000	203,689	210,689	4,807	215,496
Utah	0	317,699	545,490	863,559	62,097	925,256
Nevada (1895–96)	107,961	10,324	75,232	85,556	9,917	203,434
Idaho	21,954	0	161,937	161,937	141,247	325,138
Washington (1895–96)	99,303	0	828,191	828,191	16,362	943,896
Oregon (1895–96)	136,457	0	997,640	997,640	110,708	1,244,865
California (1895–96)	b259,000	2,764,868	2,517,828	5,282,696	81,571	5,623,267

a In 1895–96.
b Approximately.
c State appropriation for colored schools.
d Includes money appropriated from the Federal Treasury.
e Not reported.
f Report incomplete.
g Income of county funds only. The income of State funds is included in column 3.
h Includes proceeds of bond sales.

TABLE 15.—*The school revenue analyzed.*

State or Territory.	Average amount raised per taxpayer (i.e., adult males).					Amount raised for each child 5 to 18 years of age.	Amount required from each adult male to provide $1 for each child 5 to 18 years of age.	Per cent of the whole revenue derived from—			
	From permanent funds and rents.	From State taxes.	From local taxes.	From all other sources.	Total amount raised per taxpayer.			Permanent funds and rents.	State taxes.	Local taxes.	Other sources.
1	2	3	4	5	6	7	8	9	10	11	12
United States...	$0.40	$1.81	$6.60	$0.92	$9.73	$8.95	$1.09	4.2	18.6	67.8	9.4
North Atlantic Div...	.18	2.17	8.61	1.81	12.77	14.60	.87	1.4	17.0	67.4	14.2
South Atlantic Div...	.20	1.82	2.02	.43	5.07	3.40	1.49	4.0	36.1	51.7	8.2
South Central Div...	.29	2.72	1.36	.17	4.54	3.02	1.51	6.4	59.8	29.8	1.0
North Central Div...	.69	1.05	8.65	.71	11.10	10.52	1.06	6.2	9.5	77.9	6.4
Western Div	.50	2.06	5.57	.59	8.72	13.86	.63	5.7	23.6	63.9	6.8
North Atlantic Div.:											
Maine	.26	2 57	5.24	.....	8.07	9.98	.81	3.2	31.8	65.0	0
N. Ham. (1895-96)	.10	.47	6.91	.52	8.00	11.26	.71	1.3	5.9	86.4	6.4
Vermont	.09	.83	6.91	.19	8.92	11.08	.81	11.1	9.3	77.4	2.2
Massachusetts....	.24	00	15.59	.01	15.84	20.57	.77	1.5	0	98.4	.1
Rhode Island	.07	1.05	11.02	.52	12.66	15.03	.84	.6	8.3	87.1	4.0
Connecticut	.60	1.15	8.63	.47	10.85	13.84	.78	5.5	10.6	79.5	4.4
New York	.14	1.89	7.91	3.49	13.43	16.12	.83	1.0	14.1	58.9	26.0
New Jersey	.50	4.34	5.99	.02	10.85	12.02	.90	4.6	40.0	55.2	.2
Pennsylvania.....	00	3.26	7.48	*a* 1.85	12.59	12.54	1.00	0	25.9	59.4	*a* 14.7
South Atlantic Div.:											
Del. (1889-90) *b*	1.26	*c* .13	4.39	.....	5.78	5.70	1.00	21.8	*c* 2.2	76.0	0
Maryland	.15	1.70	4.93	.59	7.37	6.54	1.13	2.0	23.0	66.9	8.1
Dist. of Columbia	00	00	*d* 14.56	.....	14.56	16.07	.91	0	0	*d* 100.0	0
Virginia.....	.12	2.41	2.16	.10	4.79	3.20	1.49	2.5	50.3	45.1	2.1
W. Va. (1895-96)...	*b* .25	1.64	6.04	1.04	8.97	6.35	1.41	*b* 2.8	18.3	67.3	11.6
N. Caro. (1895-96).	00	1.89	.04	.28	2.21	1.32	1.67	0	85.6	1.9	12.5
South Carolina ..	00	1.96	.33	.69	2.98	1.04	1.81	0	65.9	11.0	23.1
Georgia.....	.49	2.09	.82	.34	3.74	2.28	1.64	13.0	55.9	21.9	9.2
Florida (1895-96)..	.32	1.10	3.79	.48	5.69	4.21	1.35	5.6	19.3	66.6	8.5
South Central Div.:											
Ky. (1895-96).....	.29	3.73	2.23	.01	6.26	4.64	1.35	4.6	59.6	35.6	.2
Tenn. (1895-96)....	.32	3.11	(*e*)	.48	3.91	2.60	1.50	8.2	79.6	(*e*)	12.2
Ala. (1894-95).....	.32	1.40	*f* .30	*f* .03	2.14	1.28	1.68	14.8	65.8	*f* 18.2	*f* 1.2
Miss. (1894-95)	.26	3.08	.59	.15	4.08	2.34	1.75	6.4	75.5	14.4	3.7
Louisiana.....	.18	.83	2.23	.29	3.53	2.32	1.52	5.0	23.7	63.2	8.1
Texas (1895-96)....	*g* .47	3.08	1.12	.16	5.73	3.91	1.46	*g* 8.2	69.4	19.6	2.8
Arkansas	00	1.12	3.23	.18	4.53	2.89	1.56	0	24.7	71.4	3.9
Oklahoma	00	.82	2.76	.27	3.85	3.95	.97	0	21.4	71.6	7.0
North Central Div.:											
Ohio	.23	1.66	9.72	.48	12.09	11.79	1.03	1.8	13.7	80.4	4.1
Indiana (1895-96)..	.07	2.75	6.30	.66	10.68	9.62	1.09	9.1	25.7	58.9	6.3
Illinois	.04	.78	10.73	.32	12.47	12.37	1.01	5.1	6.2	86.1	2.6
Michigan (1895-96)	*b* .47	*b* .89	7.25	.68	9.29	9.66	.94	*b* 5.1	*b* 9.6	78.1	7.2
Wisconsin	.46	1.06	6.90	.70	9.12	8.35	1.09	5.0	11.6	75.7	7.7
Minnesota	1.12	1.24	6.37	1.78	10.51	10.50	1.00	10.7	11.8	60.6	16.9
Iowa	.42	00	12.98	1.57	14.97	13.50	1.11	2.8	0	86.7	10.5
Missouri	.81	.86	6.80	.06	8.53	7.23	1.18	9.5	10.1	79.7	.7
N. Dak. (1895-96)..	1.05	1.87	6.68	.95	10.95	12.28	.89	15.1	15.2	61.0	8.7
S. Dak. (1895-96)..	.61	00	11.70	.52	13.13	13.20	1.00	6.9	0	89.1	4.0
Nebraska.....	1.40	.49	6.18	2.20	10.27	9.70	1.06	13.6	4.8	60.2	21.4
Kansas	1.05	00	9.35	.29	10.69	9.08	1.18	9.8	0	87.5	2.7
Western Division:											
Montana.....	.16	00	6.45	.24	6.85	18.77	.36	2.3	0	94.2	3.5
Wyo. (1895-96)....	.56	00	4.26	.08	4.90	10.23	.48	11.4	0	86.9	1.7
Colo. (1895-96).....	.36	00	9.16	*h* 1.91	11.43	20.79	.55	3.1	0	80.1	*h* 16.8
New Mexico.....	00	00	2.60	.39	2.99	3.12	.96	0	0	86.9	13.1
Arizona.....	00	.22	6.35	.15	6.72	10.51	.64	0	3.2	94.5	2.3
Utah	00	4.64	7.99	.91	13.54	10.93	1.24	0	34.3	59.0	6.7
Nevada (1895-96)..	5.08	.54	3.96	.52	10.70	22.41	.48	53.1	5.1	37.0	4.8
Idaho	.43	00	3.14	2.74	6.31	8.70	.73	6.8	0	49.8	43.4
Wash. (1895-96)...	.49	00	4.11	.08	4.68	8.67	.54	10.5	0	87.7	1.8
Oregon (1895-96)..	1.01	00	7.40	.82	9.23	12.19	.76	11.0	9	80.1	8.9
Cal. (1895-96).....	*b* .48	5.08	4.63	.15	10.34	16.67	.62	*b* 4.6	49.2	44.8	1.4

a In 1895-96.
b Approximately.
c State appropriation for colored schools.
d Includes United States appropriation.
e Not reported.
f Report incomplete.
g Income of county funds only. Income of State funds is included in State taxes.
h Includes proceeds of bond sales.

TABLE 16.—*Progress of school expenditure.*

State or Territory.	Total amount expended for schools.				Expended per capita of population.			
	1870–71.	1879–80.	1889–90.	1896–97.	1870–71.	1879–80.	1889–90.	1896–97.
1	2	3	4	5	6	7	8	9
United States	$69,107,612	$78,094,687	$140,506,715	$187,320,602	$1.75	$1.56	$2.24	$2.62
North Atlantic Division	29,706,835	28,538,058	48,023,492	72,214,658	2.38	1.97	2.76	3.62
South Atlantic Division	3,781,581	5,130,492	8,767,165	11,622,233	.63	.68	.99	1.19
South Central Division	4,854,834	4,872,829	10,678,680	13,133,295	.73	.55	.97	1.02
North Central Division	28,430,033	35,285,635	62,823,563	76,694,619	2.14	2.03	2.81	3.08
Western Division	2,344,329	4,267,673	10,213,815	13,655,797	2.15	2.41	3.37	3.49
North Atlantic Division:								
Maine	950,662	1,007,991	1,327,553	1,593,864	1.51	1.65	2.01	2.43
New Hampshire	418,545	505,339	844,333	1,040,309	1.30	1.63	2.24	2.61
Vermont	499,961	446,217	711,072	912,996	1.51	1.34	2.14	2.74
Massachusetts	5,579,363	4,983,900	8,286,062	12,300,638	3.73	2.80	3.70	4.71
Rhode Island	461,160	526,112	884,966	a1,731,735	2.05	1.90	2.56	a4.38
Connecticut	1,496,981	1,408,375	2,157,014	2,959,825	2.74	2.20	2.89	3.52
New York	9,007,904	10,296,977	17,543,880	20,690,857	2.17	2.03	2.92	3.90
New Jersey	2,302,341	1,873,465	3,340,190	5,277,247	2.48	1.66	2.31	2.98
Pennsylvania	8,479,918	7,309,682	12,928,422	19,618,187	2.36	1.72	2.46	3.23
South Atlantic Division:								
Delaware	153,509	207,281	b275,000	bc275,000	1.21	1.41	b1.63	bc1.63
Maryland	1,214,729	1,544,307	1,910,603	2,594,702	1.53	1.65	1.83	2.20
District of Columbia	373,535	438,567	905,777	1,111,298	2.77	2.47	3.93	4.00
Virginia	587,472	946,100	1,604,500	1,853,530	.47	.63	.97	1.09
West Virginia	577,719	707,553	1,198,413	d1,793,649	1.26	1.14	1.57	d2.11
North Carolina	177,498	376,062	714,900	d817,562	.16	.27	.44	d.46
South Carolina	275,688	324,629	450,936	697,008	.38	.33	.39	.55
Georgia	292,000	471,029	1,190,354	1,765,972	.24	.31	.65	.88
Florida	129,431	114,895	516,588	713,443	.66	.43	1.32	1.43
South Central Division:								
Kentucky	b1,075,000	1,009,030	2,140,678	d2,919,045	b.80	.65	1.15	d1.47
Tennessee	b758,000	744,180	1,525,241	d1,690,750	b.50	.48	.86	d.90
Alabama	b370,000	b500,000	e663,359	b.36	b.40	b.59	e.39	
Mississippi	950,000	830,705	1,109,575	e1,272,500	1.11	.73	.86	e.89
Louisiana	531,834	411,858	989,310	.71	.44	.73	.79	
Texas	b650,000	b1,030,000	3,178,300	d3,998,778	b.74	b.65	1.42	d1.34
Arkansas	b520,000	287,056	1,016,776	1,278,934	b1.02	.36	.90	.99
Oklahoma				324,619				1.16
North Central Division:								
Ohio	6,831,035	7,166,963	10,602,238	12,571,330	2.52	2.24	2.89	3.28
Indiana	b2,897,537	4,491,850	5,245,218	6,904,068	b1.70	2.27	2.39	3.10
Illinois	6,656,542	7,014,092	11,645,126	16,335,550	2.57	2.28	3.04	3.56
Michigan	2,840,740	2,775,917	5,349,366	6,378,707	2.33	1.70	2.55	2.84
Wisconsin	1,932,530	2,177,023	3,801,212	5,075,415	1.70	1.65	2.25	2.45
Minnesota	960,558	1,328,429	4,187,310	5,153,190	2.06	1.70	3.22	3.03
Iowa	3,269,190	4,484,043	6,382,953	7,890,430	2.70	2.76	3.34	3.76
Missouri	1,749,049	2,675,364	5,431,262	6,713,892	.99	1.23	2.03	2.21
North Dakota	b23,000	245,000	626,949	d1,125,893	b1.29	1.81	3.43	d3.71
South Dakota			1,199,630	d1,280,665			3.65	d3.74
Nebraska	385,520	1,108,617	3,376,312	3,421,247	2.61	2.45	3.19	3.02
Kansas	904,323	1,818,337	4,972,967	3,780,574	2.24	1.83	3.48	2.85
Western Division:								
Montana	b35,600	78,730	364,084	792,098	b1.62	2.01	2.76	3.45
Wyoming	b7,000	28,504	b225,000	d211,335	b.71	1.37	b3.71	d2.12
Colorado	67,395	395,227	1,681,379	d2,384,183	1.44	2.03	4.08	d4.38
New Mexico	b4,900	28,973	b85,000	155,955	b.05	.24	b.55	.89
Arizona	0	61,172	181,914	245,852	0	1.51	3.05	2.55
Utah	b117,000	132,194	394,685	905,713	b1.28	.92	1.90	3.47
Nevada	b85,000	220,245	161,481	202,040	b1.93	3.54	3.53	4.86
Idaho	19,003	38,411	169,020	328,249	1.17	1.18	2.00	2.34
Washington	b35,000	112,615	958,111	d1,425,509	b1.30	1.50	2.74	d2.97
Oregon	b160,000	307,031	805,979	d1,197,109	b1.65	1.76	2.57	d3.16
California	1,713,431	2,864,571	5,187,182	5,847,748	2.93	3.31	4.29	3.99

a Includes some expenditure for evening schools. *b* Approximately. *c* In 1889-90.
d In 1895-96. *e* In 1894-95.

TABLE 17.—*The school expenditure of 1896–97 classified.*

State or Territory.	Paid for sites, buildings, furniture, libraries, and apparatus.	Paid for teachers' and superintendents' salaries.	Paid for all other purposes, principally maintenance.	Total expenditure, excluding payment of bonds.
1	2	3	4	5
United States	$31,903,245	$119,303,542	$36,113,815	$187,320,602
North Atlantic Division	17,506,822	39,655,897	15,051,939	72,214,658
South Atlantic Division	1,107,177	8,859,070	1,655,986	11,622,233
South Central Division	1,176,077	10,917,205	1,040,013	13,133,295
North Central Division	10,367,300	50,828,351	15,498,968	76,694,619
Western Division	1,745,869	9,043,019	2,866,909	13,655,797
North Atlantic Division:				
Maine	259,966	1,164,328	169,570	1,593,864
New Hampshire	80,583	651,647	308,079	1,040,309
Vermont	a264,593	631,991	16,412	912,996
Massachusetts	2,728,197	b7,032,812	2,629,629	12,390,638
Rhode Island	550,977	c933,680	247,078	1,731,735
Connecticut	555,819	1,837,518	563,488	2,959,825
New York	8,398,676	14,169,060	4,131,121	26,689,857
New Jersey	979,371	3,194,049	1,103,827	5,277,247
Pennsylvania	3,688,640	10,049,812	5,879,735	19,618,187
South Atlantic Division:				
Delaware (1889–90)	d23,795	225,000	26,205	275,000
Maryland	326,899	1,932,512	335,291	2,594,702
District of Columbia	187,410	743,298	180,590	1,111,298
Virginia	171,019	1,459,059	222,561	1,853,539
West Virginia (1895–96)	223,071	1,112,513	458,065	1,793,649
North Carolina (1895–96)	53,172	705,416	58,974	817,562
South Carolina	43,814	509,180	54,074	607,068
Georgia	e19,090	1,534,020	212,922	1,765,972
Florida	58,907	547,172	107,304	713,443
South Central Division:				
Kentucky (1895–96)	415,357	2,372,214	131,474	2,919,045
Tennessee (1895–96)	182,636	1,342,870	165,244	1,690,750
Alabama (1894–95)	e18,230	618,668	c26,461	663,359
Mississippi (1894–95)	37,314	1,108,013	127,173	1,272,500
Louisiana	72,825	780,472	136,013	989,310
Texas (1895–96)	256,346	3,404,054	336,378	3,996,778
Arkansas	135,134	1,000,511	51,289	1,276,934
Oklahoma	58,235	200,403	65,981	324,619
North Central Division:				
Ohio	1,176,770	8,430,875	2,966,745	12,574,390
Indiana	b1,000,000	5,004,790	b959,878	6,964,668
Illinois	2,912,852	10,377,443	3,045,235	16,335,550
Michigan	853,476	4,044,352	1,480,879	6,378,707
Wisconsin	711,933	3,451,986	911,496	5,075,415
Minnesota	702,477	3,406,580	984,133	5,153,190
Iowa	707,324	5,264,354	1,918,752	7,890,430
Missouri	1,200,354	4,305,904	1,147,634	6,713,892
North Dakota (1895–96)	182,353	586,774	356,766	1,125,893
South Dakota (1895–96)	144,728	829,083	306,852	1,280,663
Nebraska	455,645	2,390,018	575,584	3,421,247
Kansas	199,388	2,736,192	844,994	3,780,574
Western Division:				
Montana	213,919	438,133	140,046	792,098
Wyoming (1895–96)	29,118	153,239	28,948	211,345
Colorado (1895–96)	343,500	1,319,921	720,762	2,384,183
New Mexico	7,699	124,015	24,241	155,955
Arizona	12,747	155,991	37,114	205,852
Utah	174,446	514,573	216,694	905,713
Nevada	34,875	167,171	(f)	202,046
Idaho	86,165	197,283	g14,801	328,249
Washington (1895–96)	140,079	769,150	516,280	1,425,509
Oregon (1895–96)	173,845	784,968	238,296	1,197,109
California	529,476	4,418,545	899,727	5,847,748

a Includes expenditure for books, janitors, and transportation of pupils.
b Approximately.
c Including salaries of evening-school teachers.
d Includes city of Wilmington only.
e Report incomplete.
f Not reported separately.
g In 1895–96.

TABLE 18.—*(1) Expenditure per pupil (based on average attendance); (2) average daily expenditure per pupil; (3) percentage analysis of school expenditure.*

State or Territory.	Average expenditure per pupil (for the whole school year).				Average daily expenditure per pupil.		Per cent of the total expenditure devoted to—		
	For sites, buildings, etc.	For salaries.	For all other purposes.	Total per pupil.	For salaries only.	Total.	Sites, buildings, etc.	Salaries.	All other purposes
1	2	3	4	5	6	7	8	9	10
					Cents.	*Cents.*			
United States	$3.16	$11.82	$3.58	$18.56	8.4	13.2	17.0	63.7	19.3
North Atlantic Division	6.92	15.68	5.86	28.56	9.1	16.5	24.2	54.9	20.9
South Atlantic Division	.87	6.95	1.30	9.12	6.3	8.2	9.5	76.2	14.3
South Central Division	.64	5.93	.57	7.14	6.4	7.7	9.0	83.1	7.9
North Central Division	2.64	12.94	3.94	19.52	8.6	12.9	13.5	66.3	20.2
Western Division	3.38	17.49	5.53	26.40	12.4	18.7	12.8	66.2	21.0
North Atlantic Division:									
Maine	2.69	12.06	1.75	16.50	8.9	12.1	16.3	73.1	10.6
New Hampshire	1.69	13.65	6.46	21.80	10.1	16.2	7.7	62.6	29.7
Vermont	a5.24	12.52	.33	18.09	8.1	11.7	a29.0	69.2	1.8
Massachusetts	8.15	b21.00	7.85	37.00	b11.3	19.9	22.0	b56.7	21.3
Rhode Island	11.19	c18.97	5.02	35.18	c10.9	20.2	31.8	c53.9	14.3
Connecticut	5.50	18.18	5.60	29.28	9.7	15.6	18.8	62.1	19.1
New York	10.24	17.27	5.03	32.54	9.3	17.5	31.5	53.1	15.4
New Jersey	5.11	16.66	5.75	27.52	9.1	15.0	18.6	60.5	20.9
Pennsylvania	4.41	12.01	7.02	23.44	7.6	14.8	18.8	51.2	30.0
South Atlantic Division:									
Delaware (1889–90)	d1.21	11.45	1.33	13.99	6.9	8.4	d8.7	81.8	9.5
Maryland	2.45	14.46	2.51	19.42	7.9	10.7	12.6	74.5	12.9
District of Columbia	5.63	22.32	5.41	33.36	12.2	18.3	16.9	66.9	16.2
Virginia	.80	6.84	1.05	8.69	5.7	7.2	9.2	78.8	12.0
West Virginia	1.58	7.89	3.25	12.72	7.1	11.5	12.4	62.0	25.6
North Carolina (1895–96)	.23	3.04	.26	3.53	4.7	5.4	6.5	86.3	7.2
South Carolina (1895–96)	.24	3.28	.30	3.82	3.9	4.6	6.3	86.0	7.7
Georgia	e.08	6.22	.86	7.16	5.3	6.1	e1.1	86.9	12.0
Florida	.85	7.87	1.55	10.27	7.6	10.0	8.3	76.7	15.0
South Central Division:									
Kentucky (1895–96)	1.45	8.27	.46	10.18	7.2	8.9	14.2	81.2	4.6
Tennessee (1895–96)	.54	3.97	.49	5.00	4.4	5.5	10.8	79.5	9.7
Alabama (1894–95)	e.10	3.34	e.14	3.58	4.6	4.9	e2.7	93.3	e4.0
Mississippi (1894–95)	.18	5.47	.63	6.28	5.2	6.0	2.9	87.1	10.0
Louisiana	.59	6.29	1.09	7.97	5.9	7.5	7.4	78.9	13.7
Texas (1895–96)	.58	7.73	.77	9.08	8.4	9.8	6.4	85.2	8.4
Arkansas	.69	5.58	.26	6.53	8.4	9.8	10.6	85.4	4.0
Oklahoma	1.48	5.09	1.67	8.24	6.0	9.8	17.9	61.7	20.4
North Central Division:									
Ohio	1.91	13.88	4.88	20.70	8.4	12.6	9.4	67.0	23.6
Indiana	b2.48	12.43	b2.39	17.30	8.7	12.1	b14.4	71.9	b13.7
Illinois	4.13	14.71	4.32	23.16	9.3	14.7	17.8	63.5	18.7
Michigan	2.46	11.65	4.26	18.37	7.2	11.4	13.4	63.4	23.2
Wisconsin	2.60	12.60	3.33	18.53	7.9	11.5	14.0	68.0	18.0
Minnesota	3.24	14.47	4.17	21.88	9.3	14.1	14.8	66.1	19.1
Iowa	2.03	15.13	5.53	22.69	9.3	14.0	9.0	66.7	24.3
Missouri	2.57	8.78	2.34	13.69	7.0	10.9	18.8	64.1	17.1
North Dakota (1895–96)	4.74	15.25	9.27	29.26	14.2	27.2	16.2	52.1	31.7
South Dakota (1895–96)	2.65	15.18	5.62	23.45	11.0	16.9	11.3	64.7	24.0
Nebraska	2.03	13.04	3.36	19.96	8.7	12.5	13.3	60.9	16.8
Kansas	.78	10.78	3.33	14.89	8.5	11.8	5.3	72.4	22.3
Western Division:									
Montana	10.09	20.67	6.61	37.37	13.2	23.9	27.0	55.3	17.7
Wyoming (1895–96)	3.78	19.90	3.77	27.45	22.1	30.5	13.8	72.5	13.7
Colorado (1895–96)	5.50	21.15	11.54	38.19	13.2	23.9	14.4	55.4	30.2
New Mexico	.40	6.41	1.25	8.06	7.0	8.7	4.9	79.5	15.6
Arizona	1.22	14.94	3.55	19.71	11.7	15.5	6.2	75.8	18.0
Utah	3.61	10.65	4.49	18.75	7.0	12.3	19.3	56.8	23.9
Nevada	8.41	40.35	(f)	48.76	26.2	31.7	17.3	82.7	(f)
Idaho	3.80	8.71	g1.98	14.49	9.9	16.5	26.3	60.1	g13.6
Washington (1895–96)	2.22	12.17	8.16	22.55	13.6	25.3	9.8	54.0	36.2
Oregon (1895–96)	2.82	12.72	3.86	19.40	11.7	17.8	14.5	65.6	19.9
California	2.80	23.40	4.76	30.96	13.6	17.9	9.1	75.6	15.3

a Includes expenditure for books, janitors, and transportation of pupils.
b Approximately.
c Includes salaries of evening school teachers.
d Includes city of Wilmington only.
e Report incomplete.
f Not reported separately.
g In 1895–96.

TABLE 19.—(*1*) *School expenditures per capita of population; (2) same per capita of average attendance.*

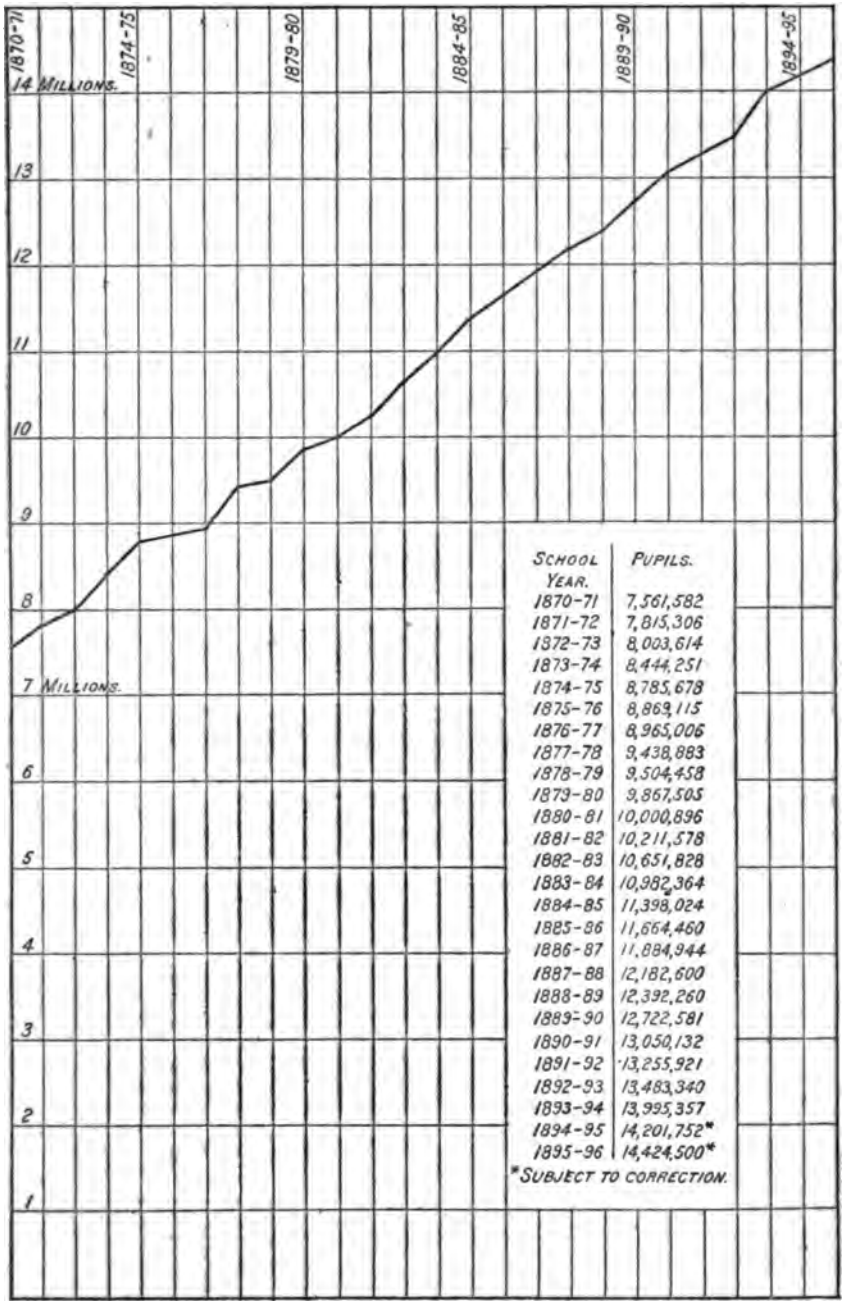
Year.	Expended per capita of population.						Expended per pupil.					
	United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.	United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
1870–71	$1.75	$2.38	$0.63	$0.73	$2.14	$2.15	$15.20	$18.31	$10.27	$9.06	$14.87	$21.87
1871–72	1.83	2.40	.68	.81	2.31	2.27	15.93	18.86	10.46	9.08	16.36	23.57
1872–73	1.84	2.44	.68	.74	2.31	2.42	16.06	19.89	9.25	8.39	16.53	25.04
1873–74	1.88	2.51	.76	.68	2.38	2.40	15.85	19.89	9.01	7.55	16.57	24.36
1874–75	1.91	2.55	.80	.73	2.36	2.76	15.91	20.17	8.98	7.51	16.69	26.85
1875–76	1.85	2.45	.79	.55	2.37	2.78	15.70	19.14	8.65	6.70	16.91	26.35
1876–77	1.72	2.20	.72	.51	2.21	2.61	14.64	17.89	7.68	6.25	15.93	24.69
1877–78	1.67	2.15	.70	.56	2.14	2.73	13.67	16.55	7.21	5.98	15.08	25.82
1878–79	1.56	2.03	.63	.55	2.00	2.53	12.97	16.05	6.76	5.65	14.22	23.39
1879–80	1.56	1.97	.68	.55	2.03	2.41	12.71	15.64	6.60	5.40	14.39	22.59
1880–81	1.63	2.08	.72	.58	2.09	2.54	13.61	17.14	7.22	5.72	15.19	23.81
1881–82	1.70	2.11	.78	.64	2.19	2.59	14.05	17.35	7.63	6.25	15.79	24.32
1882–83	1.80	2.22	.82	.68	2.34	2.74	14.55	18.17	7.46	6.17	16.69	25.39
1883–84	1.88	2.25	.84	.74	2.48	2.83	14.63	18.37	7.44	6.26	16.90	24.69
1884–85	1.96	2.38	.88	.82	2.53	2.90	15.12	19.19	7.32	6.74	17.53	25.31
1885–86	1.97	2.36	.88	.87	2.54	2.88	15.06	19.11	7.33	6.93	17.45	25.52
1886–87	1.97	2.35	.90	.87	2.55	2.76	15.07	19.38	7.33	6.88	17.45	24.85
1887–88	2.07	2.48	.95	.87	2.68	2.96	15.71	20.60	7.61	6.60	18.29	27.38
1888–89	2.17	2.50	.98	.94	2.76	3.28	16.55	21.64	7.77	7.12	19.30	29.37
1889–90	2.24	2.76	.99	.97	2.81	3.37	17.23	23.58	7.78	7.28	19.70	30.57
1890–91	2.31	2.79	1.06	1.04	2.85	3.78	17.54	23.66	8.52	7.78	19.42	33.42
1891–92	2.40	2.94	1.07	1.06	2.94	4.03	18.20	24.89	8.74	7.82	20.13	33.55
1892–93	2.48	3.04	1.10	1.06	3.07	3.97	18.58	25.91	8.65	7.72	20.62	33.57
1893–94	2.53	3.14	1.12	1.07	3.20	3.53	18.62	26.21	8.61	7.58	21.29	29.06
1894–95	2.54	3.32	1.13	1.06	3.12	3.49	18.41	26.84	8.58	7.69	20.26	27.32
1895–96*a*	2.61	3.47	1.15	1.04	3.18	3.53	18.92	28.28	8.88	7.41	20.70	27.17
1896–97*a*	2.62	3.62	1.19	1.02	3.08	3.49	18.56	28.56	9.12	7.14	19.52	26.40

a Subject to correction.

List of blank forms of inquiry sent out.

Schedules.	Items.	Schedules tabulated.	Schedules mailed, about—	Where information is tabulated in report for 1896–97.
State systems	74	50	150	Vol. 1, pp. LV to LXXIV
City systems	39	601	1,500	Chap. XLI, Vol. 2.
City and village systems	20	311	1,000	Chap. XLI, Vol. 2.
Public high schools	46	5,109	15,000	Chap. XL, Vol. 2.
Private high schools	46	2,100	6,500	Chap. XL, Vol. 2.
Normal schools	37	302	1,000	Chap. XXXIX, Vol. 2.
Universities and colleges	38	472	1,000	Chap. XXXVI, Vol. 2.
Colleges for women	32	157	400	Chap. XXXVI, Vol. 2.
Schools of technology	38	48	100	Chap. XXXVI, Vol. 2.
University extension	6	24	100	Chap. XXXVI, Vol. 2.
Agricultural colleges	42	65	150	Chap. XXXVII, Vol. 2.
Medical schools	15	150	250	Chap. XXXVIII, Vol. 2.
Theological schools	13	157	250	Chap. XXXVIII, Vol. 2.
Law schools	16	77	200	Chap. XXXVIII, Vol. 2.
Dental schools	12	48	180	Chap. XXXVIII, Vol. 2.
Schools of pharmacy	13	43	.....	Chap. XXXVIII, Vol. 2.
Veterinary schools	11	12	175	Chap. XXXVIII, Vol. 2.
Schools for nurses	11	298	600	Chap. XXXVIII, Vol. 2.
Commercial schools	18	341	1,000	Chap. XLII, Vol. 2.
Schools for the colored race	33	169	550	Chap. XLIV, Vol. 2.
Reform schools	23	88	300	Chap. XLV, Vol. 2.
Institutions for the blind	29	36	100	Chap. XLV, Vol. 2.
Institutions for the deaf	31	95	300	Chap. XLV, Vol. 2.
Institutions for the feeble minded	23	28	100	Chap. XLV, Vol. 2.
Kindergartens	12	1,157	7,000	Chap. XLI, Vol. 2.

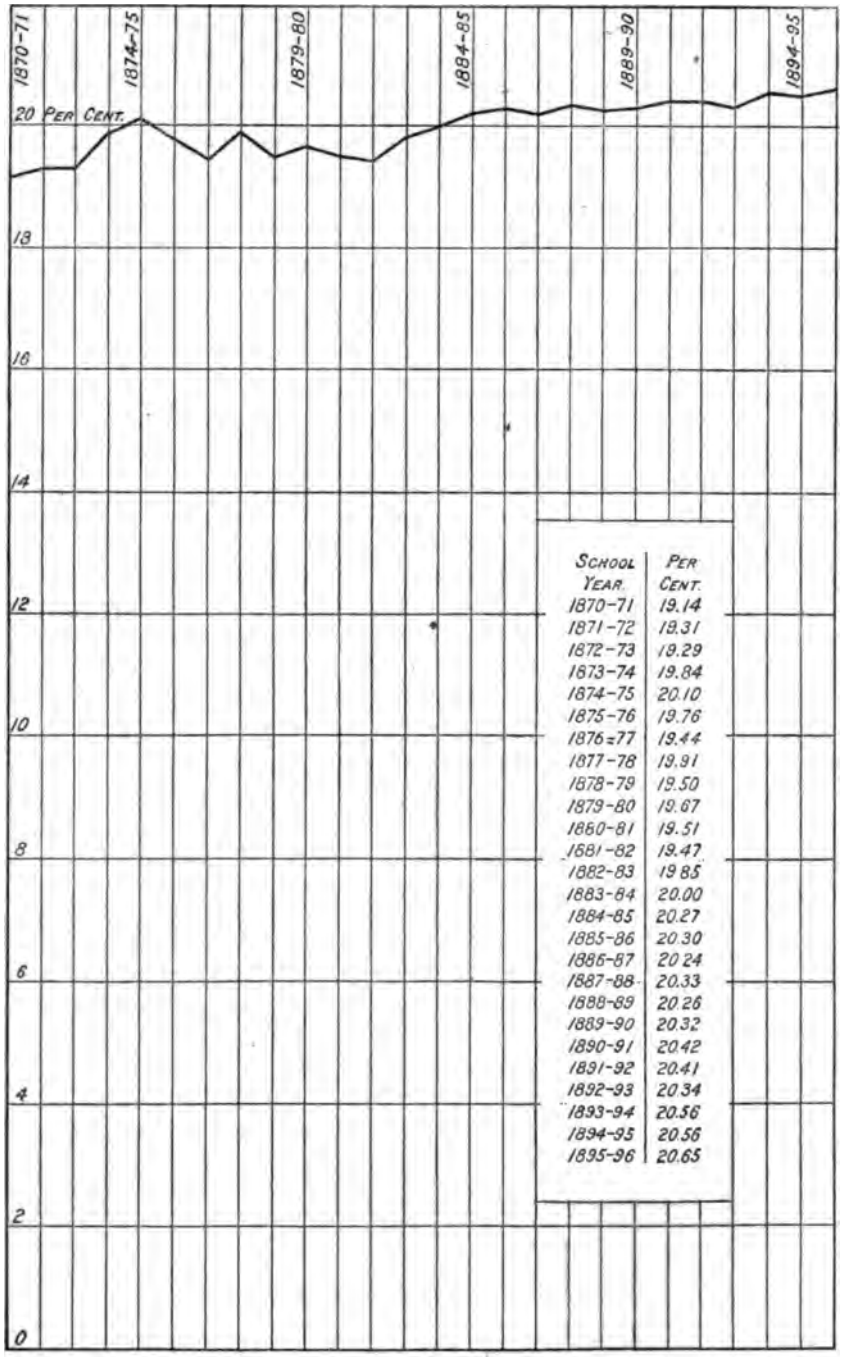
DIAGRAM 1.—*Number of pupils enrolled in the common schools of the United States each year since 1870–71.*



SCHOOL YEAR.	PUPILS.
1870–71	7,561,582
1871–72	7,815,306
1872–73	8,003,614
1873–74	8,444,251
1874–75	8,785,678
1875–76	8,869,115
1876–77	8,965,006
1877–78	9,438,883
1878–79	9,504,458
1879–80	9,867,505
1880–81	10,000,896
1881–82	10,211,578
1882–83	10,651,828
1883–84	10,982,364
1884–85	11,398,024
1885–86	11,664,460
1886–87	11,884,944
1887–88	12,182,600
1888–89	12,392,260
1889–90	12,722,581
1890–91	13,050,132
1891–92	13,255,921
1892–93	13,483,340
1893–94	13,995,357
1894–95	14,201,752*
1895–96	14,424,500*

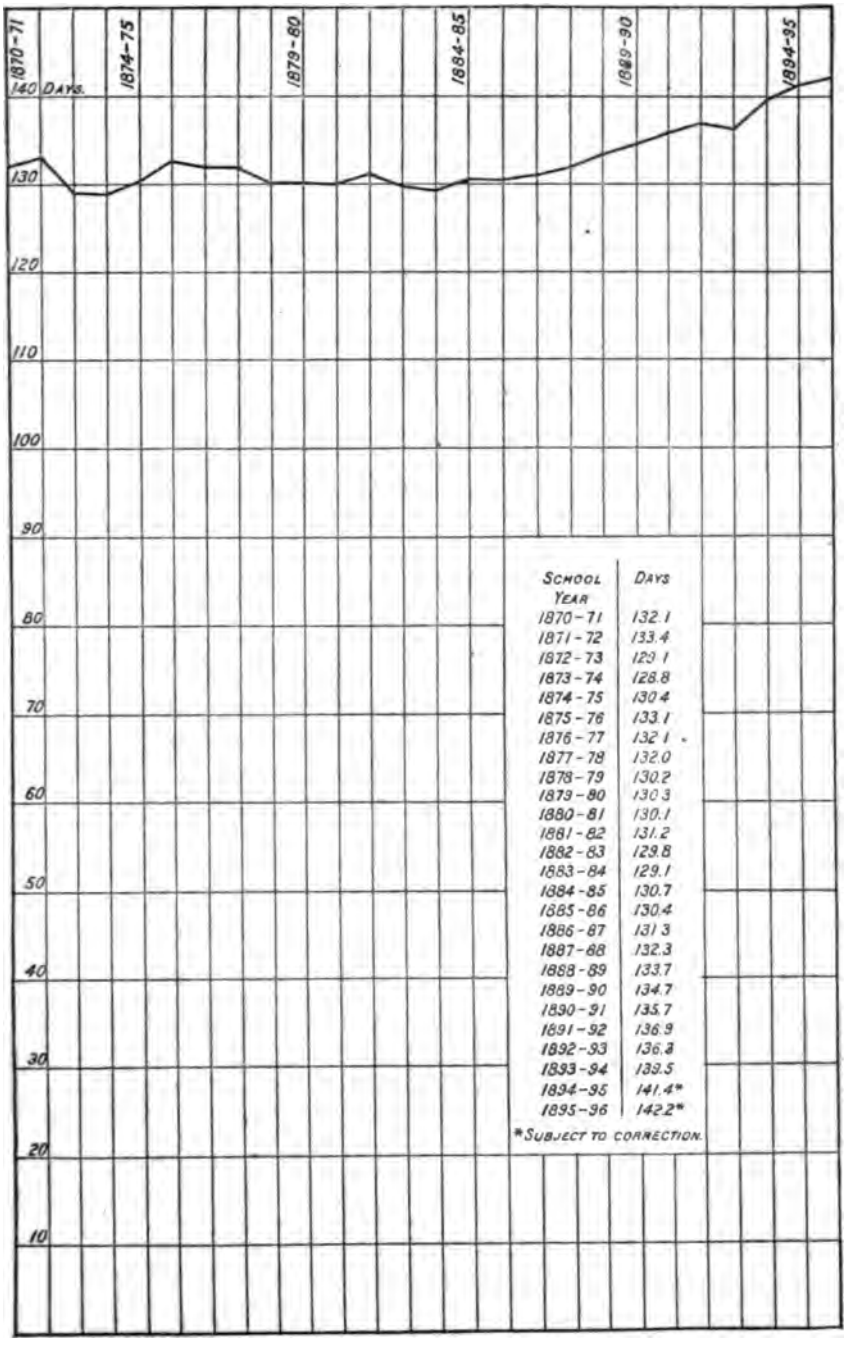
*SUBJECT TO CORRECTION.

DIAGRAM 2.—*Showing the percentage of the total population enrolled in the common schools by years since 1870–71.*



SCHOOL YEAR.	PER CENT.
1870–71	19.14
1871–72	19.31
1872–73	19.29
1873–74	19.84
1874–75	20.10
1875–76	19.76
1876–77	19.44
1877–78	19.91
1878–79	19.50
1879–80	19.67
1880–81	19.51
1881–82	19.47
1882–83	19.85
1883–84	20.00
1884–85	20.27
1885–86	20.30
1886–87	20.24
1887–88	20.33
1888–89	20.26
1889–90	20.32
1890–91	20.42
1891–92	20.41
1892–93	20.34
1893–94	20.56
1894–95	20.56
1895–96	20.65

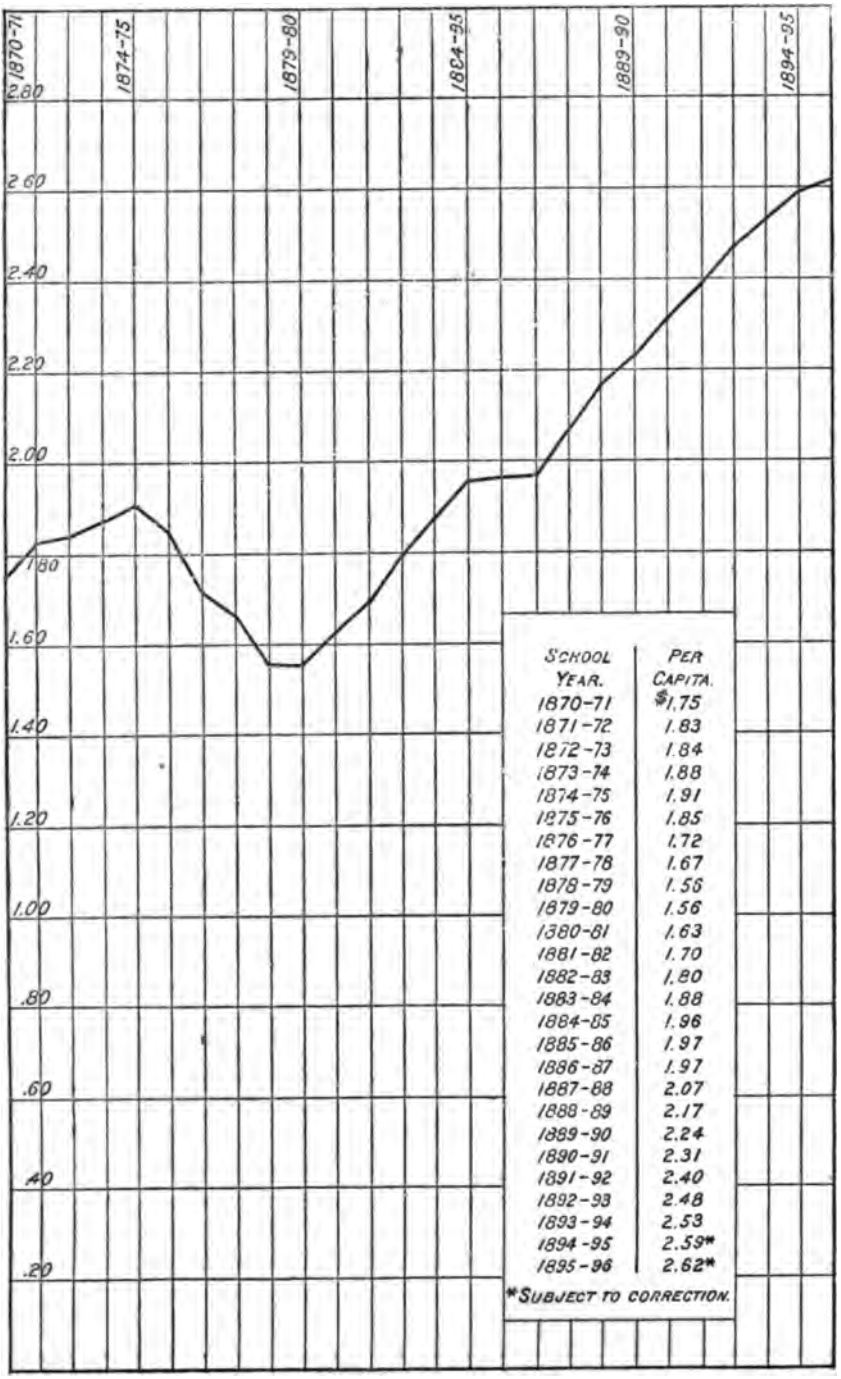
DIAGRAM 3.—*Showing the average number of days the schools were kept each year since 1870–71.*



SCHOOL YEAR	DAYS
1870–71	132.1
1871–72	133.4
1872–73	129.1
1873–74	128.8
1874–75	130.4
1875–76	133.1
1876–77	132.1
1877–78	132.0
1878–79	130.2
1879–80	130.3
1880–81	130.1
1881–82	131.2
1882–83	129.8
1883–84	129.1
1884–85	130.7
1885–86	130.4
1886–87	131.3
1887–88	132.3
1888–89	133.7
1889–90	134.7
1890–91	135.7
1891–92	136.9
1892–93	136.3
1893–94	139.5
1894–95	141.4*
1895–96	142.2*

*SUBJECT TO CORRECTION.

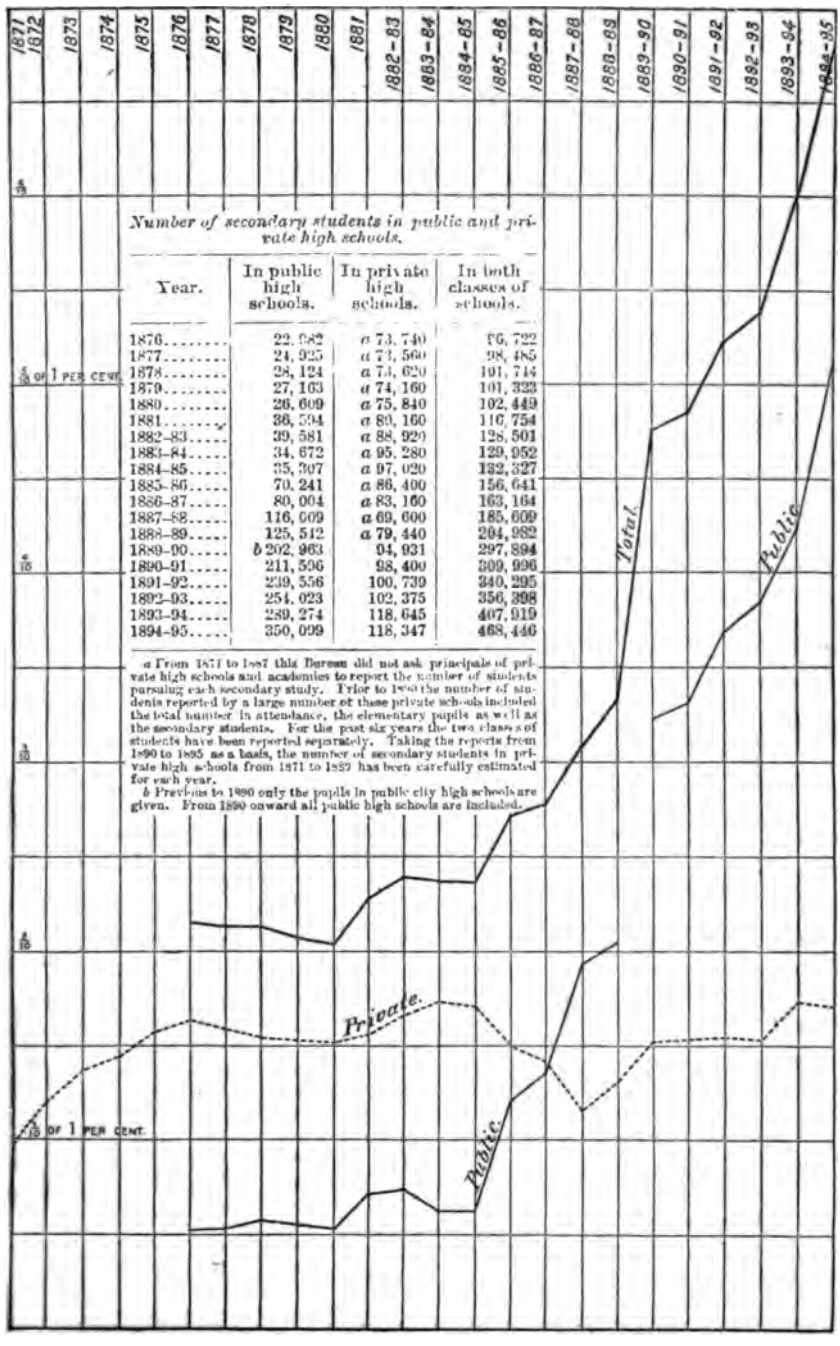
DIAGRAM 4.—*Showing the amount expended per capita of population each year since 1870–71.*



SCHOOL YEAR.	PER CAPITA.
1870-71	$1.75
1871-72	1.83
1872-73	1.84
1873-74	1.88
1874-75	1.91
1875-76	1.85
1876-77	1.72
1877-78	1.67
1878-79	1.56
1879-80	1.56
1380-81	1.63
1881-82	1.70
1882-83	1.80
1883-84	1.88
1884-85	1.96
1885-86	1.97
1886-87	1.97
1887-88	2.07
1888-89	2.17
1889-90	2.24
1890-91	2.31
1891-92	2.40
1892-93	2.48
1893-94	2.53
1894-95	2.59*
1895-96	2.62*

*SUBJECT TO CORRECTION.

DIAGRAM 5.—***Showing what percentage of the population was enrolled as secondary students in public and private high schools.***



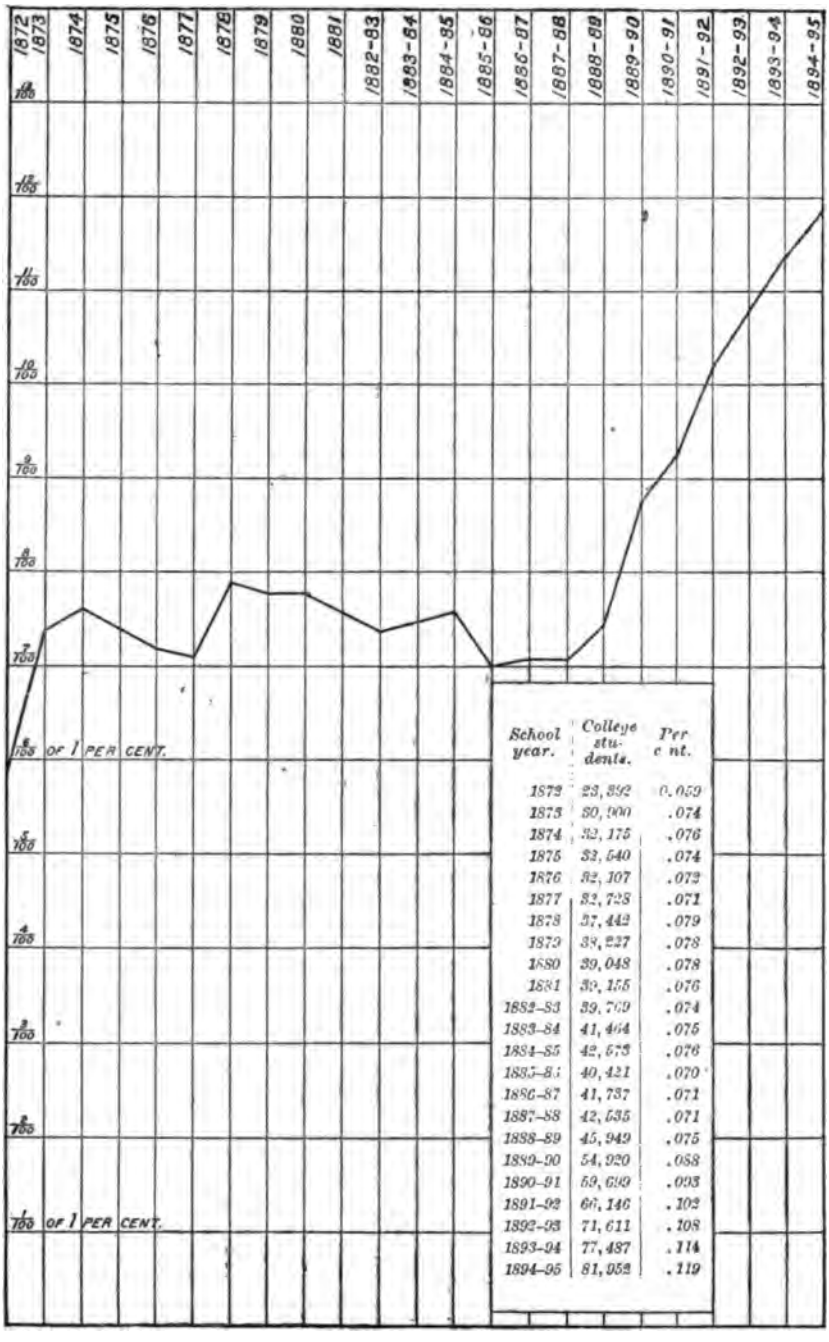
Number of secondary students in public and private high schools.

Year.	In public high schools.	In private high schools.	In both classes of schools.
1876	22,682	*a* 73,740	96,722
1877	24,925	*a* 73,560	98,485
1878	28,124	*a* 73,620	101,744
1879	27,163	*a* 74,160	101,323
1880	26,609	*a* 75,840	102,449
1881	36,594	*a* 80,160	116,754
1882–83	39,581	*a* 88,920	128,501
1883–84	34,672	*a* 95,280	129,952
1884–85	35,307	*a* 97,020	132,327
1885–86	70,241	*a* 86,400	156,641
1886–87	80,004	*a* 83,160	163,164
1887–88	116,609	*a* 69,600	185,609
1888–89	125,542	*a* 79,440	204,982
1889–90	*b* 202,963	94,931	297,894
1890–91	211,596	98,400	309,996
1891–92	239,556	100,739	340,295
1892–93	254,023	102,375	356,398
1893–94	239,274	118,645	407,919
1894–95	350,099	118,347	468,446

a From 1871 to 1887 this Bureau did not ask principals of private high schools and academies to report the number of students pursuing each secondary study. Prior to 1887 the number of students reported by a large number of these private schools included the total number in attendance, the elementary pupils as well as the secondary students. For the past six years the two classes of students have been reported separately. Taking the reports from 1890 to 1895 as a basis, the number of secondary students in private high schools from 1871 to 1889 has been carefully estimated for each year.

b Previous to 1890 only the pupils in public city high schools are given. From 1890 onward all public high schools are included.

DIAGRAM 6.—*Showing what per cent of the total population was enrolled as college students during each year since 1872.*



School year.	College students.	Per cent.
1872	23,392	0.059
1873	30,000	.074
1874	32,175	.076
1875	32,540	.074
1876	32,107	.072
1877	32,728	.071
1878	37,442	.079
1879	38,227	.078
1880	39,048	.078
1881	39,155	.076
1882–83	39,709	.074
1883–84	41,464	.075
1884–85	42,675	.076
1885–86	40,421	.070
1886–87	41,737	.071
1887–88	42,535	.071
1888–89	45,949	.075
1889–90	54,920	.088
1890–91	59,609	.093
1891–92	66,146	.102
1892–93	71,611	.108
1893–94	77,487	.114
1894–95	81,958	.119

PART I.

PART I.

CHAPTER I.

EDUCATION IN GREAT BRITAIN AND IRELAND.[1]

Great Britain and Ireland, constitutional monarchy; area, England and Wales 58,186 square miles; population (estimated, 1894), 30,060,763; Scotland, 29,820 square miles; population, 4,123,038; Ireland, 32,583 square miles; population (census, 1891), 4,704,750.

For previous articles on education in Great Britain, see the following:

Detailed view of the educational system of England. (Report for 1888–89, Vol. I, pp. 78–111.)

Religious and moral training in public elementary schools, England and Wales. (Ibid., pp. 438–457.)

Brief view of the educational system, with current statistics. (Report for 1889–90, Vol. I, pp. 237–248.)

Educational system of Scotland. (Ibid., pp. 187–236.)

Elementary education in London and Paris. (Ibid., pp. 263–280.

Brief view of systems of England and Scotland, with current statistics and comparison with 1876 (England), 1880 (Scotland). (Report for 1890–91, Vol. I, pp. 125–134.)

Provision for secondary and for technical instruction in Great Britain. (Ibid., pp. 135–150.)

Educational system of Ireland. (Ibid., pp. 151–164.)

Elementary education in Great Britain and Ireland, 1892. (Report for 1891–92, Vol. I, pp. 97–104.)

Technical instruction in Great Britain. (Ibid., pp. 105–137.)

Elementary education in Great Britain. (Report for 1892–93, Vol. I, pp. 203–208.)

Religious instruction under the London school board. (Report for 1892–93, Vol. I, pp. 208–218.)

Great Britain and Ireland, educational statistics and movements, 1893. (Report for 1893–94, Part I, pp. 165–185.)

Educational systems of England and Scotland, with statistics and movements, 1893–94. (Report for 1894–95, Vol. I, pp. 257–273.)

The English education bill of 1896. (Report for 1895–96, Vol. I, pp. 79–121.)

Education in Great Britain and Ireland, 1895–96, with detailed statement of the development of the English system. (Ibid., pp. 123–135.)

[1] Prepared by Miss Anna Tolman Smith.

TOPICAL OUTLINE.—Brief conspectus of the educational system of England—Educational statistics—Legislation of 1897 and survey of antecedent laws—Education in London.

Brief conspectus of the English system.—Elementary education alone has been organized into a system which is maintained by the combined effort of State and local authorities.

The action of the State is limited to securing through local agencies adequate provision for the instruction of all children. An annual grant is made by Parliament, $21,174,735 in 1896, which is distributed to the managers of schools, public and private, that fulfill specified conditions. These pertain to the equipment and staffing of the school, the duration of the annual session, the course of study, and the results of instruction. A grant in lieu of fees is also made for schools remitting the same, amounting in 1896 to $10,689,668. This sum with the grant above named makes a total of $31,864,403, or 64 per cent of the entire school expenditure from the public treasury.

A committee of council (education department) is charged with the distribution of the grant and maintains a force of inspectors, who must make an inspection of every school twice a year and report as to its efficiency, equipment, etc. The report of the inspector determines the amount of the grant to which the school is entitled.

The local school authorities are elective school boards or private managers, and the schools are characterized as board or voluntary, according to the management. Board schools are maintained in part by local taxes, yielding $10,627,422 in 1896. Private schools have no claim upon these, but draw a portion of their support from endowments and subscriptions. Fees may be charged in either class of schools, but have been generally remitted since the passage of the law of 1890, providing for the additional grant. Board schools must be nonsectarian, and private schools, even if parochial, are restrained by a "conscience clause" in the education law of 1870 from forcing religious instruction upon pupils.

School districts must enact compulsory by-laws applicable to all children between the ages of 5 and 14 unless they have obtained the educational certificate which alone entitles them to exemption. The age for exemption can not be less than 11 years, and under the by-laws of many districts exceeds that limit.

The teaching staff of a school comprises certificated teachers, assistants on probation, and pupil teachers. The last named are regarded as teachers in training, and an additional grant is made to the school on their account.

Teachers' training colleges established by private managers also receive appropriations from the State.

The system of education in Scotland, based upon the law of 1872, presents substantially the same features as that of England; i. e., it is a State-aided system in which local authorities have large liberty of action.

The Irish system, although differing materially from those of England and Scotland in respect to the nature and the relations of the central and local authorities, is maintained also by the combined action of the two.

The current statistics of education in the United Kingdom are here presented, followed by a comparative view of the principal statistics of elementary education for England and Scotland.

Educational statistics.

Institutions.	Date of report.	Registered students or pupils.	Professors or teachers.	Expenditures.
GREAT BRITAIN.				
England and Wales.				
Universities:				
Oxford (23 colleges)	1896	3,365	95	
Cambridge (19 colleges)	1896	2,895	113	
London (2 colleges)	1896	2,124	187	
Durham (1 college)	1896	171	12	
Detached colleges (13)	1896	11,097	573	
University Colleges for Women (4)	1896	393		
Bedford College for Women	1896	180	26	
Elementary day schools	1896	5,422,989	115,634	$49,694,940
Night schools	1896	208,724		
Training colleges for elementary teachers	1896	4,380		a 1,123,964
Scotland.				
Universities:				
Aberdeen (1 college)	1896	691	49	
Edinburgh (1 college)	1896	2,825	99	
Glasgow (1 college)	1896	1,866	100	
St. Andrew's (1 college)	1896	220	30	
Glasgow college	1896	251	64	
Dundee University College	1896	183	25	
Elementary day schools	1896	709,478	15,708	7,136,482
Night schools	1896	50,822		
Training colleges for elementary teachers	1896	963		a 211,607
Ireland.				
Dublin University (1 college)	1896	1,123	64	
Belfast, Queen's College	1896	392	24	
Cork, Queen's College	1896	206	24	
Galway, Queen's College	1896	105	16	
Elementary day schools	1896	815,248	b 13,195	6,250,996
Training colleges for elementary teachers				
Department of Science and Art.				
Science schools and classes	1896	196,185	146,193	3,852,180
Art schools and classes	1896			

a Includes costs of boarding departments. b Also 5,853 paid monitors.

Comparative view of statistics of elementary education at specified dates.

	England and Wales.				Scotland.	
	1870.	1874.	1876.	1896.	1880.	1896.
I. Estimated population	22,090,163	23,648,609	24,244,010	30,800,522	3,705,314	4,189,270
II. Number of schools, day and night (institutions) inspected	8,281	13,163	14,368	23,590	3,065	3,533
Pupils:						
Accommodation—						
1. Day schools—						
Voluntary	1,878,584	2,626,318	2,870,168	3,638,963	602,054	824,448
Board		245,508	556,150	2,433,411		
2. Night schools (not connected with day schools)—						
Voluntary		10,507	14,421		1,361	2,892
Board			389			
Enrollment—						
Day schools	1,693,059	2,497,602	2,943,774	5,422,989	534,428	709,478
Average attendance—						
1. Day scholars—						
Voluntary	1,152,389	1,540,466	1,656,502	2,465,919	404,618	592,934
Board		138,296	328,071	1,956,902		
2. Night schools		48,690	49,858	147,025	14,397	50,822
III. Number of teachers:						
Day schools—						
Certificated	12,467	18,714	23,053	56,712	5,330	9,565
Assistant	1,262	2,489	3,173	25,393	444	1,913
Pupil	14,304	27,061	32,231	33,529	4,582	4,230
IV. Current expenditures			$16,584,356	$49,694,900	$4,122,879	$7,136,482

LEGISLATION OF 1897.

The Commissioner's report for 1895–96 contained a full account of the English education bill introduced into the House of Commons by Sir John Gorst, vice-president of the education department, April, 1896. The bill was intended to provide additional support from public funds for elementary schools and to reorganize the local administration of the schools. The measure was the outcome of promises of additional aid to parochial (voluntary) schools made during the campaign of 1895 by the leaders of the Conservative party, but, although supported at the outset by an immense majority, it collapsed in the second week of the committee debate on the proposals respecting local administration. In withdrawing the bill Mr. Balfour, the leader of the House of Commons, intimated that its consideration would be resumed in January, 1897. It was, however, generally understood that this particular measure was abandoned, and such proved to be the case. Since the promises that had been made to the managers of parochial schools could not be ignored, a new bill was presented by Mr. Balfour in February, 1897, the scope of which is set forth in the following resolution:

That it is expedient (*a*) to authorize the payment out of moneys to be provided by Parliament of an aid grant to voluntary schools not exceeding 5 shillings per scholar for the whole number of scholars in those schools; (*b*) to repeal, as regards day schools, so much of section 19 of the elementary education act, 1876, as imposes a limit on the Parliamentary grant to elementary schools in England and Wales, and (*c*) to make provision for the exemption from rates of voluntary schools.

Introduced as a money bill, precedence was given to this measure over other matters, and it was pushed rapidly through the three readings in the House of Commons and the committee stage, and was finally passed by both Houses April 5 and received royal sanction a few days later.

The text of the law is as follows:

AID GRANT TO VOLUNTARY ELEMENTARY SCHOOLS.

1. (1) For aiding voluntary schools there shall be annually paid, out of moneys provided by Parliament, an aid grant not exceeding in the aggregate 5 shillings per scholar for the whole number of scholars in those schools.

(2) The aid grant shall be distributed by the education department to such voluntary schools and in such manner and amounts as the department think best for the purpose of helping necessitous schools and increasing their efficiency, due regard being had to the maintenance of voluntary subscriptions.

(3) If associations of schools are constituted in such manner, in such areas, and with such governing bodies representative of the managers as are approved by the education department, there shall be allotted to each association while so approved—

(*a*) A share of the aid grant to be computed according to the number of scholars in the schools of the association at the rate of 5 shillings per scholar, or, if the

department fix different rates for town and country schools, respectively (which they are hereby empowered to do), then at those rates; and

(*b*) A corresponding share of any sum which may be available out of the aid grant after distribution has been made to unassociated schools.

(4) The share so allotted to each such association shall be distributed as aforesaid by the education department, after consulting the governing body of the association, and in accordance with any scheme prepared by that body which the department for the time being approve.

(5) The education department may exclude a school from any share of the aid grant which it might otherwise receive if, in the opinion of the department, it unreasonably refuses or fails to join such an association, but the refusal or failure shall not be deemed unreasonable if the majority of the schools in the association belong to a religious denomination to which the school in question does not itself belong.

(6) The education department may require, as a condition of a school receiving a share of the aid grant, that the accounts of the receipts and expenditures of the school shall be annually audited, in accordance with the regulations of the department.

(7) The decision of the education department upon any question relating to the distribution or allotment of the aid grant, including the question whether an association is or is not in conformity with this act, and whether a school is a town or a country school, shall be final.

REPEAL OF 17S. 6D. LIMIT RESPECTING DAY SCHOOLS IN ENGLAND AND WALES.

2. After the last day of March, 1897, the following words in section 19 of the elementary education act, 1876, namely, "Such grant shall not in any year be reduced by reason of its excess above the income of the school, if the grant do not exceed the amount of 17s. 6d. per child in average attendance at the school during that year, but shall not exceed that amount per child, except by the same sum by which the income of the school derived from voluntary contributions, rates, school fees, endowments, or any source whatever other than the Parliamentary grant, exceeds the same amount per child, and" shall be repealed so far as they apply to day schools in England and Wales.

EXEMPTION FROM RATES OF VOLUNTARY ELEMENTARY SCHOOLS.

3. No person shall be assessed or rated to or for any local rate in respect of any land or buildings used exclusively or mainly for the purposes of the schoolrooms, offices, or playground of a voluntary school except to the extent of any profit derived by the managers of the school from the letting thereof.

DEFINITIONS.

4. In this act, unless the context otherwise requires—

The expression "voluntary school" means a public elementary day school not provided by a school board.

Any reference to the number of scholars in schools means the number of scholars in average attendance, as computed by the education department.

The expression "local rate" means a rate the proceeds of which are applicable to public local purposes and which is leviable on the basis of an assessment in respect of the yearly value of property and includes any sum which, though obtained in the first instance by a precept, certificate, or other instrument requiring payment from some authority or officer, is or can be ultimately raised out of a local rate, as before defined.

Other expressions have the same meaning as in the elementary education acts, 1837 to 1893.

EXTENT OF ACT AND SHORT TITLE.

5. (1) This act shall not extend to Scotland or Ireland.
(2) This act may be cited as the "voluntary schools act, 1897."

The sum placed at the disposal of parochial schools by this law amounts for the current year to $3,050,000. The measure was opposed by the Liberal party on the ground principally that it provided for sectarian endowment. It was further urged that the relief it offered was entirely inadequate to the needs it was intended to meet. Moreover, the new administrative agency created by clause 3, section 1, providing for the federation of schools, was regarded as especially obnoxious. The Liberals were not alone in their objections to these features, which were criticized by many Conservative members who, however, voted for the measures.

The following citations from speeches made in Parliament or on the public platform during the debate emphasize these points.

Upon the inadequacy of the relief provided, Mr. Yoxall, who represents the interests of elementary education in Parliament, spoke as follows:

With the State aid grant, according to the vice-president, the committee of council are to bring about certain reforms in the management of schools. He hoped the vice-president would be able to do all he proposed to do, but the ideas of the right honorable gentleman were not embodied in the bill. Unless they were so embodied there was no security whatever that those admirable ideas would be carried out. But even if they were placed in the bill in the shape of specific amendments, and if it were determined to spend the money upon the purposes indicated, the money was entirely inadequate. To take the first thing referred to by the vice-president, the single-handed schools alone would require some £300,000 out of the £600,000. One-half of the money would go on that provision alone. Next they were told that the money was to be used in giving better salaries to the wretchedly paid teachers in the voluntary schools. The whole grant would not suffice to do that. The Government were going to give as a whole 5 shillings per child, but the deficiency between the board school and the voluntary school was 12 shillings per child, and of that 9 shillings per child came out of the pockets of the voluntary school teachers. How, therefore, the purposes of the vice-president were going to be defrayed out of a grant of 5 shillings per child he entirely failed to see. There was nothing in the bill or in the speech of the vice-president which would prevent the money from being spent more and more upon rates, taxes, fuel, lighting, and cleaning. The only way to prevent the leakage of the money voted by Parliament to noneducational purposes was to give some direct popular representation of the management of the schools. That need not interfere with the denominational character of the schools. It was also the only way to prevent the dismissal of teachers for all sorts of reasons other than legitimate reasons. As to these associations, he feared that unless express provisions were inserted in the bill to prevent it, a large part of the money voted would go to defray the organizing expenses of the associations.

In reply to Mr. Balfour's exclamation that this was quite impossible under the bill, Mr. Yoxall continued:

Last year the London diocesan board distributed £2,265 ($11,325) among poor schools, but the expenses, including the inspection of the schools in religious knowledge, were £1,384 ($6,920). He hoped that safeguarding clauses would be inserted in committee.

As to the association of schools provided for in clause 3, Mr. Jebb, who favored the bill, gave the following indorsement:

The cardinal feature [he said] of the machinery of the bill was, of course, the principle of association for the voluntary schools. It appeared to him it was not adequately recognized by honorable gentlemen opposite that some such grouping of voluntary schools was a matter of necessity for the purpose of distributing the grant. There were in England and Wales upward of 14,000 voluntary schools, and the grant was to be distributed according to the needs of the schools. It would be impossible for the education department, dealing individually with upward of 14,000 schools, to discriminate between their relative needs.

For the purpose of comparison and discrimination the area of the whole country was too vast. It was evident there must be some limit to the areas. On the other hand, it was clearly right that the department should have a veto on the area, because if the area adopted were too small it would not fairly represent the average of the needs. In the case of the Church of England the obvious area was the diocese. It must not be overlooked that the education department had the control of the constitution of the governing body on the council of an association. For example, the department might insist that on the council of every diocesan association, or any other association of voluntary schools, there should be a certain representation of laymen, and he thought it was highly probable that the department would insist upon such representation. Honorable members had maintained that there should be representative popular control, but the bill did not touch the management of the individual schools; that was altogether beyond its scope. The bill took the existing managing bodies of voluntary schools and invited them to nominate representatives on the council of each association, and the definite public guarantee for the proper constitution of the council was the control exercised and the veto possessed by the education department. In his opinion the bill afforded a most effective guarantee against any misapplication of the money granted, and the associations themselves would necessarily be of great educational value in the districts to which they belonged, for they would bring together the managers of voluntary schools in common council and common action. By doing so they would necessarily stimulate a local interest in educational work. They would probably tend to keep up an average of local efficiency. (School Board Chronicle, February 20, 1897.)

This favorable view of the principle of federation was not generally held by the Liberals. The abuses and confusion to which it might give rise were emphasized by the Liberal leader, Sir William Harcourt, both in and out of the House.

In a speech opposing the bill he maintained that, so far from having a common object, the members of these associations would each have the sole object of getting as much of the money for himself as possible and allowing as little as possible to go to anyone else.

As to the revisory power reposed in the vice-president of the education department, he said:

To have an absolute power to remold this scheme is to encounter the ecclesiastics from a population of a million and to rejudge their acts, to redress their injustice, and to give to those who have not received what they ought to have had and to take away from those who have got what they ought not to have had.

* * * * * * *

I would really ask, Is this a practical question?

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Applying to it ordinary intelligence and some experience of the questions, and the districts, and the habits of the people who will have to deal with this question, unless some very different explanation can be given than any yet offered, I must pronounce it to be the most preposterous and absurd scheme that was ever submitted to the judgment of the House of Commons.

The discriminating character of a special grant of this kind was emphasized by concrete illustrations in a speech by Sir William Harcourt before a public meeting which, as it throws many side lights on the peculiar complications of the "dual school" system, and also on the tactics employed in carrying the measure, is here cited in extenso.

Under this bill [said Mr. Harcourt] in Lancashire they will get about £114,000 ($570,000). What do you think London, which has about the same number of scholars, is to have? They are to get £42,000 ($210,000), just about one-third, because the money is to be given to voluntary schools. There are more voluntary schools in Lancashire, and few in London, and therefore Lancashire is to get £114,000 ($570,000) and London £42,000 ($210,000). I will tell you what London is entitled to for the board schools, as nearly as possible—£100,000 ($500,000). But do you think you are going to get it? All I can say is that if you do, your faith must be like a grain of mustard seed. Let us examine this bill. Take Lancashire, for instance. Lancashire is a very rich county, but the real truth is that in Lancashire more than anywhere else there is great difficulty in getting subscriptions to the voluntary schools. There is much less sacrifice made there than in many parts of the country—much less sacrifice than is made in the southern counties that are so much poorer, and where board schools are supported by the rates—and yet you are going to assist the one and not assist the other. Let me say this more about the bill. You can hardly call this a bill at all. When you come to look at it, nothing is defined. No conditions are laid down in any proper or adequate way as to the security of dealing with this money. Instead of calling it a bill I should call it a head for a bill for sectarian endowments. Now, that is the first principle that we contend for, namely, equality of treatment for the board schools and the voluntary schools. That is refused. We hear much about the intolerable strain upon voluntary schools. Is there no intolerable strain on the rate payers? They say that voluntary schools are about to be starved out of existence. But voluntary schools have gone on growing and growing. What their friends are jealous of and can not bear is that the national popular schools—the board schools—grow also. When the board schools were established—and I had the satisfaction of taking a principal part in establishing the principle of board schools—they were introduced to make up the deficiencies of voluntary effort; but so great were the deficiencies of voluntary effort that the board schools have been compelled to fill up nearly half of the vacuum, and they are therefore entitled to at least as much consideration to fair treatment as the voluntary schools. Now, let me go to the next principle for which we contend. We have never denied that aid should be given to the voluntary schools, because our object is to get good education, and in many of the voluntary schools, and in some of the board schools, too, the education is not as good as it ought to be, because they can not afford adequate teaching staffs.

Therefore, so long as you deal fairly toward both classes of schools, we are not opposed to giving assistance to voluntary schools as well as to board schools. That must be clearly understood. What we say is this: If you are going to give this vast sum of money, let it be given on fair conditions in the application of that money, whether it is to board schools or to voluntary schools. In this country there are a number of schools that have no voluntary contributions at all. What an abuse of terms that is to claim special privileges for them when there is no voluntary contribution and they are entirely sustained by public money or by the

fees they exact from the children. There is another very important thing. There are 8,000 schools in this country where nonconformists have no access except to denominational schools. Now, what ought to be the case if you are going to give still larger sums of money to these voluntary schools? What we have asked and what we have contended for is that, as a complement to this new grant, there shall be popular representation. That is the next fundamental principle for which we contend. Is that a sound principle? I will read you a passage which expresses my view on that subject:

"The existence of sectarian schools supported by a State grant is, no doubt, a very serious question, and one which some day or another ought to receive consideration.

"Well, that day has arrived.

"Whenever the time comes for this discussion, I for one shall not hesitate to express my opinion that contributions of Government money, whether great or small, ought in all cases to be accompanied by some form of representative control. To my mind the spectacle of a so-called national school turned into a private preserve for a clerical minority and used for exclusive purposes of politics or religion is one which ought not to be tolerated."

That is a doctrine admirably expressed. It is from Mr. Chamberlain, one of the responsible authors of this present bill.

That was the important principle for which we were contending. We were only allowed one night's debate upon it, but it was a very remarkable debate, because in that debate man after man rose from the Government side of the House and implored the Government to act upon this principle to admit popular representation—not an overwhelming representation, which would have destroyed the denominational character of the schools. It was a most deplorable scene. I have had a pretty long Parliamentary experience, but I have never yet seen a great Government with a great majority obliged, in the very earliest stages of the principal bill of their session, to coerce their own followers by a threat of resignation. (School Board Chronicle, March 13, 1897.)

The progress of federation as provided for in the third clause of the law has been rapid, and the character of the governing bodies already formed seems to justify the demand that the law should provide explicitly for a certain proportion of professional experts in each of the governing bodies, to avoid the dangers of the extreme clerical tendency. The Church of England schools are being formed into associations, generally on the basis of the diocese all over the country, but very few teachers are admitted to the management. The Wesleyans alone seem inclined to give fair representation to those directly engaged in the work of the schools.

Immediately upon the passage of the bill in aid of denominational schools, Sir John Gorst moved a resolution for bringing in a bill in the interest of board schools in poor districts. The bill, which was admitted and passed without delay, increases slightly the grant to the class of schools named, appropriating for this purpose the small amount of $553,010. The discrepancy between the two measures of relief was tersely summed up by Mr. Acland, as follows:

The voluntary schools, educating indifferently two and a half millions of children, receive under the first law over £600,000 ($3,000,000). The board schools, educating more efficiently some two millions, are under the second measure to have only £110,000 ($550,000).

These two laws establish a precedent for special legislation which has heretofore been excluded from the system of elementary education.

A brief summary of previous legislation may serve to show more clearly the general bearing of these recent measures. The law of 1870, the foundation of the system, was also the first by which legal provision was made for the education of the whole people. Hitherto the elementary schools had been purely private ventures of the most desultory sort or the creations of religious societies. The Government had, however, manifested interest in the cause as early as 1833 by the grant of $100,000, to be distributed through the British and Foreign School Society and the National Society. In 1839 a committee of council on education was appointed to superintend the distribution, and the annual appropriation was increased to $150,000. The development of the system is signally illustrated by the fact that the Education Department distributed above $30,000,000 the present year.

The principal features of the law of 1870 were (1) the obligation assumed by the Government to secure school provision for all children of ages 5 to 14; (2) the recognition or creation of local agencies (private or church managers or elected boards) for the execution of this purpose; (3) provision for securing efficient instruction by means of an annual grant from the treasury to be distributed to the local managers upon the results of examination and inspection by Government inspectors; (4) the creation of a central agency to carry out the provisions on the part of the Government and of new local agencies, school boards, which every school district must elect except upon satisfactory evidence that schools efficient and adequate to the needs of the district were otherwise provided; (5) the admission of private and public elementary schools to a share in the Government grant upon the same conditions; (6) the requirements that board schools should be strictly nonsectarian and the children of private schools protected from enforced sectarian instruction by a conscience clause.

Under the provisions of this law 5,467 board schools have been created since 1870, with accommodation for 2,455,289 pupils, and the number of private (voluntary) schools increased from 8,798 to 14,479, with accommodation for 3,643,380 pupils.

In 1871, the year after the passage of the education law, the education department issued a code or body of regulations stating precisely the conditions upon which a school might share in the Government grant; a similar code has been since issued yearly. As these codes must be approved by Parliament, they have the binding force of law, and may therefore be included in this review.

The law of 1876 provided additional means for securing school attendance. To this end it established school attendance committees in districts having no school boards, forbade the employment of children under 14 years of age without proof of certain attainments, and

made it the legal obligation of parents to secure the instruction of their children in the elementary subjects. In 1896 the population under school attendance committees was 9,127,566, and under school boards, 19,874,959.

The law of 1880 went still further in the direction of compulsory education. By this, local educational authorities were required to make by-laws compelling parents to send their children to school. The law of 1891, providing an extra grant in lieu of fees for all schools remitting the same, completed the measures for securing universal school attendance. In 1893 the age at which a child may obtain total or partial exemption from school attendance, provided he has secured the educational certificate required by the local by-laws, was raised to 11 years. These direct efforts for enforcing and prolonging school attendance have been accompanied by changes in the code designed to increase both the attractiveness and the efficiency of the schools. The codes of 1875 and 1880 greatly extended the list of optional subjects for which grants could be claimed, and thus laid the foundations for the higher grade schools, which have become such an important factor in the progress of the larger cities and towns of England. The code of 1882 made the first break in the system of payment upon results. Individual examination in the elementary subjects was still maintained. For these alone a teacher could secure from the grant rates varying from 13 to 16 shillings per capita of the children who passed. Liberal grants were offered also for attainments in the higher subjects. The most important feature introduced by the new regulations was the "merit grant." This was to be awarded at rates varying from 1 to 3 shillings per capita of average attendance, according to the report of the inspector as to the general conditions of the school—i. e., whether excellent, good, or fair. Inspectors were instructed, in making up the report, to consider the special difficulties of the teachers, the general intelligence of the district, etc.

In 1895 the system of annual examinations was radically changed. Heretofore the inspectors had made a rigid annual examination of every school on the Government list. From this ordeal schools that had reached a certain standard were now excused. In place of the formal examination there were substituted two annual visits from the inspector, the visits to be made without notice. The inspector is to test the instruction and the general condition of the school, and from the notes taken at the time to make up his report of the school. If the report is satisfactory, the school will be entitled to the full grant.

If further evidence be wanting of the advance in the ideal of popular education, it is found in the improved regulations respecting evening schools. In 1890 it was first determined that these schools should no longer be purely or chiefly elementary in their scope, and in 1893 their character as "evening continuation schools" was distinctly outlined. The code of that year offered a wide choice of subjects adapted to the

various needs of scholars and districts, and enabled managers to combine instruction in subjects for which grants are paid by the State with instruction in other subjects for which no such grants are paid, but which it may be for special reasons desirable to include in the curriculum. It suggested, further, a variety of courses of instruction; recognized the attendance of persons over 21 years of age; sanctioned the payment of grants for the instruction of the school as a whole instead of for the attainments of individual scholars, and made other important changes in the methods of awarding the Government grants to these schools.

The effect of this policy may be inferred from the increased attendance. In 1889 less than 65,000 students availed themselves of the provision; in 1896 the number was 298,724. In 1892, the year before payments were first allowed for students above 21 years of age, only 6,617 above that limit were enrolled; in four years the number has risen to 35,815.

This brief survey justifies the belief that the law of 1897, for the relief of voluntary schools, and the law increasing grants to the poorer school boards were primarily intended to increase the efficiency of schools that form an important part of the general system. The need of such improvement was recognized alike by Liberals and Conservatives, but as to the proper means of its accomplishment there were, as we have seen, grave and bitter differences.

The system here considered pertains to England and Wales only. Scotland secured a general education law in 1872, which conserved the best features of the famous parish school system and differed from the English law in particulars that show the prevalence in Scotland in the early seventies of a higher ideal of popular education and a general preference for public schools. The Scotch law distinctly recognized higher grade schools and made the election of school boards mandatory for every district. The matter of religious instruction was left to the boards, excepting that no child could be constrained to attend upon religious instruction.

A Parliamentary grant was allowed as in England, and its provision intrusted to a committee of council (education department, Scotland) upon like conditions as in England, and under a similar system of inspection. The reciprocal action of the two systems has been advantageous to both. The growth in the English ideal has undoubtedly been stimulated by that of Scotland. On the other hand, the necessity of securing every step by legislative action in the southern division of the Kingdom has increased in Scotland activity in the same direction. The gap between elementary schools and higher institutions, which forms at this moment a serious obstacle to the best development of the English system, has never existed in Scotland. On the contrary, technical education is more liberally fostered and better organized in England than in Scotland.

ELEMENTARY EDUCATION IN LONDON.

Population and school provision.—The magnitude of the educational work of London is indicated by the population, which in 1896 numbered 6,177,913, exceeding that of any one of the United States, New York alone excepted. If inner or registration London only be included, the population was 4,421,492, which is exceeded by two of the United States, viz, New York and Pennsylvania. This vast aggregate of people represented a school population of 832,966, comprising the children between 3 and 13 years of age. The estimate is made on the basis of six-sevenths of the total population, one-seventh being excluded as the class whose children will not be sent to the elementary schools. School accommodation is provided for 754,614 children in schools recognized as "efficient;" that is, entitled to Government aid. These are either voluntary (chiefly parochial schools), which provide 34 per cent of the total number of places, or board schools, that supply 66 per cent. Since the election of the first school board in 1870, immediately after the passage of the elementary school law, the school population has increased by 45 per cent. At that time there were places in voluntary schools for 261,158, less than one-half the population of school age.

The relative status of the two classes of schools with respect to accommodation and attendance in 1896 and the growth from 1870 to that year are shown in the following tabulation:

	Christmas, 1871.	Lady day, 1896.	Increase or decrease.	Per cent of increase.
Number of children of the elementary school class between the ages of 3 and 13	574,693	832,966	258,273	45
Accommodation in efficient schools:				
Board schools	.....	497,751	497,751	.....
Nonboard schools	262,259	256,863	a5,396	.....
Total	262,259	754,614	492,355	187.7
Average number on roll of efficient schools:				
Board schools	.....	511,506	511,506	.....
Nonboard schools	222,518	227,364	4,846	.....
Total	222,518	738,930	516,412	232
Average attendance at efficient schools:				
Board schools	.....	415,471	415,771	.....
Nonboard schools	174,301	178,902	4,601	.....
Total	174,301	594,373	420,372	241

a Decrease.

Of the total enrollment for 1896, 703,371 children were between the ages of 3 and 13 and 40,336 were above 13. The sex of children in infant schools (number, 261,326) is not reported. Of the older children, 239,274 were boys and 238,330 were girls.

The foregoing statistics indicate in a measure the work achieved by the school board in twenty-six years in the mere matter of providing

schools. At the end of 1896 the board had 402 schools open and 153 in process of construction. The selection and purchase of sites has been one of the most difficult tasks imposed upon the board and explains in part the charges of extravagance by which it is hampered.

Although immense progress has been made in overcoming the school deficiency that existed in 1870, the supply of school places is still nearly 80,000 below the number of school children. As, however, will appear from further statements, a part of this deficiency is counterbalanced by the children unable to attend school.

General character of voluntary schools.—The voluntary schools are chiefly parochial, but some few are under private management, as, for instance, the Jews' free school, probably the largest school in the world, maintained by Baron de Rothschild. This school, situated in the midst of the district where the poorer Jewish immigrants congregate, has accommodation for 2,250 boys and 1,250 girls. It is one of the most efficient schools in London, as shown by the large annual grant which it secures upon the results of the Government examination. Besides tuition, breakfasts are provided every morning and each child is given a suit of clothes and two pairs of shoes yearly. A savings bank is connected with the school which pays the pupils 10 per cent on small deposits.

Beyond the statistics already given, official information respecting the voluntary schools is seldom attainable. The further statements in this chapter relate to the schools under the school board.

Constitution and powers of the school board.—This body is elected by all the rate payers (women included) for a term of three years. It comprises 55 members, organized in ten or eleven standing committees, and employing a permanent staff of about 450 officers and clerks. Besides the salaried officers, there are local managers, to whom the board delegates certain supervisory functions. These local managers, numbering about 2,000, are appointed upon the nomination of the divisional committees. They usually retain office, if they will, as long as they make a minimum number of visits to the schools. As a rule, three schools are placed under one group of managers. The local managers nominate the assistant teachers, and also take part in the selection and nomination of the head teachers.

Within the restrictions of the education law (1870, and subsequent amendments), which limits the powers of the school boards simply in respect to the conditions as to equipment, attendance, and efficiency required for participation in the parliamentary grant, the board has absolute authority with respect to the schools. It chooses and purchases sites, appoints teachers, and determines their qualifications and salaries, and may claim or levy taxes (rates on the taxable property) to meet the current expenses in excess of the amount derived from the annual grants or other sources of permanent income.

The responsibility of the board is not limited simply to the care of the

company with thieves are sent—one at Brentford, for 100 boys, and the other, the Shaftesbury industrial training ship, for 500 boys. There are also two truant schools and a day industrial school. A house has recently been acquired for a girls' industrial school.

The board has also secured 1,005 places (870 for boys and 135 for girls) in voluntary industrial schools, of which there are 36, with accommodation for 8,333 children. There are also voluntary truant schools, with provision for 165 pupils. Altogether there are 9,638 places in industrial and truant schools for the special care of vicious or incorrigible children. The expenditure for these schools in 1896 reached $235,000.

Causes of irregular attendance.—Complaint is made that the efforts of the board to secure regular attendance are not adequately seconded by the magistrates, and in general that the means of dealing with truant children are unsatisfactory.

Under ordinary circumstances complete exemption from school attendance may not be granted for any child under 13 years of age, and in the case of children over 13 complete exemption can not be granted unless it is proved that the child has made 350 attendances annually during five of the six years immediately preceding. With all the efforts that are put forth it is admitted that "the degree of regularity of attendances at which the board aims has not yet been reached." Many causes in the metropolis militate against the attainment of a high percentage of average attendance. Of these the following are cited: The poverty of large masses of the population; the migratory character of the population; the stringency of the board's regulations with regard to infectious diseases; the lack of sufficient and proper facilities for prosecutions for nonattendance at school.

Classification of pupils by grade.—With respect to studies the classification of pupils in the board schools was as follows in 1896:

Grade.	Number.	Percentage of children in each grade exclusive of "below grade 1."
Below grade 1	151,344	
Grade 1	84,188	23.6
Grade 2	70,830	19.9
Grade 3	64,057	18
Grade 4	55,056	15.4
Grade 5	41,470	11.6
Grade 6	25,890	7.3
Grade 7	11,521	3.2
Ex. grade 7	3,724	1
Total (inclusive of those below grade 1)	508,080	

The obligatory studies and the standards of each grade are fixed by the education department, and are applicable to all schools under Government inspection. The obligatory subjects are reading, writing,

and arithmetic, with drawing for boys and needlework for girls; also object lessons in the three lower grades. In addition to these subjects the programmes include class subjects, one of which must be taken by the older pupils, and specific subjects. The latter would be counted high-school studies in this country. The reports do not give the precise number of pupils taking either the class or specific subjects, but the tabulated results of the examinations here presented indicate the number approximately.

Results of examinations in class subjects.

Department.	Number of cases in which—	
	2-shilling grant was earned.	1-shilling grant was earned.
Boys	890	9
Girls	845	15
Mixed	113	7
Total	1,848	31

Results of examinations in specific subjects.

Department.	Number of cases in which—	
	3-shilling grant was earned.	2-shilling grant was earned.
Boys	25,673	988
Girls	12,595	401
Mixed	1,853	113
Total	40,121	1,482

Extent of gratuitous provision.—The board has remitted all fees in the day schools and supplies school books, apparatus, and stationery free of charge to the pupils. Pianos are provided in the halls of 57 schools, to assist in the music drills given to children. There are scholars' lending libraries at every permanent school. Suitable books for children are lent free, to encourage a love of reading. Thrift is fostered by the establishment of penny banks at the schools.

The teaching corps.—The teaching staff of the board schools in the year under review had reached a total of 10,695, classified as follows:

Period.	Adult teachers.		Pupil teachers.	
	Masters.	Mistresses.	Boys.	Girls.
Year ended lady day, 1896	3,014	6,060	285	1,316
Increase over 1895	131	284	21	15

Expenditure for salaries was approximately £1,169,720 ($5,848,600), or 49 per cent of the total expenditure.

The average salaries of teachers were as follows in 1895:

Class.	Number.	Average salary.
Head masters	352	$1,643
Head mistresses	700	1,179
Assistant masters	2,294	741
Assistant mistresses	4,605	602

Evening schools.—Evening schools, opened first by the board in 1882, have been greatly developed under the new regulations issued by the education department in 1893.

In accordance with the new programmes the name is changed to evening continuation schools, which indicates the wider and freer scope of their work. Particulars of these schools and of other special departments of the board's work are included in the statement of the chairman of the finance committee quoted below.

Finances.—The expenditure by the board in 1896 reached the sum of $11,722,360, of which amount about 75 per cent was derived from the local tax. The adjustment of this tax is the most difficult of all the responsibilities resting upon the board, and is the point against which the advocates of parochial schools direct their criticism with most telling effect. During the year under review the cries of extravagance were specially pronounced, and had much to do in bringing about the clause in the defeated education bill providing for a veto on school-board expenditure by some external authority.

It is admitted even by those thoroughly in sympathy with the work of the board that the annual increase of expenditure calls for special attention.

The chairman of the finance committee in presenting estimates for the current year submitted an exhaustive analysis of the conditions of the problem, and while recognizing that items of new expenditure must continually arise, urged that the board should exercise greater control over the action of its standing committees. The statement as a whole is of importance only to the rate payers of London, but many particulars have a general interest because they disclose the workings of one of the chief school systems of the world.

The chairman stated that—

The estimates passed by the various committees, and approved by the board, for the year ended March 25, 1896, amounted to $11,364,810; the approximate expenditure amounted to $11,722,360, or an excess of expenditure over estimate of $357,550. With the accounts of so large a work as that of this board, items of new expenditure must of necessity arise from time to time. New work arises in various ways. Firstly, it is imposed upon the board by Parliament (this was the case when the board had to take over from the poor-law boards the care and the maintenance of the deaf and blind children; work such as this has to be undertaken whether the board like it or no). Secondly, the board itself occasionally seek new powers, as in the case of manual training and laundry classes, but in all cases that come under these two heads the liability on the board's finance can be foreseen and provided for. Thirdly, there is work arising from an outbreak of an

epidemic, etc., or a defect or failure in the sanitary arrangements. This class is practically the only one that entails work that must be proceeded with so soon as the necessity is demonstrated, and yet which could not have been foreseen. Fourthly, there is another class of new expenditure which is almost invariably extensive and costly in character; i. e., the alteration of internal fittings to schools, the supply of a more elaborate apparatus, and new methods of organizing the schools. This class of expenditure, however, is completely under the control of the committees in charge of the work, and should never be commenced until the board have had an opportunity of providing the necessary funds. When I come to examine into the cause of this overexpenditure of $357,550, I find that no excess upon estimate has arisen under the first three heads, but that the excess is mainly due to the last class of expenditure; i. e., expenditure over which the committees have full power of control, both as regards time of execution and amount of work to be executed.

The gross cost per capita of average attendance for the successive years 1893 to 1896 was shown to be as follows:

Year.	Gross cost per child.	Year.	Gross cost per child.
1893	$17.83	1895	$18.60
1894	18.00	1896	19.54

These rates are below the average of our own cities, in which the per capita ranges generally from $20 to $35.

The following tabulation shows the total expenditure for the same years and the steady increase during the period:

Year.	Total expenditure.	Increase over previous year.	Year.	Total expenditure.	Increase over previous year.
1893	$9,843,560	$480,970	1895	$10,803,790	$635,975
1894	10,167,815	324,255	1896	11,722,360	918,570

The yearly increase in expenditure brings an increased levy on the local taxes, which, for the year ending March 25, 1897, it was estimated must furnish £1,800,926 ($9,004,630), equivalent to a tax of 12.31 pence in the pound[1] (equivalent to 5 cents on a dollar). This was an increase of 0.82 pence over the rate of the previous year, and is the highest assessment yet reached.

[1] The London rate, which, as shown above, is about a shilling in the pound, exceeds the average rate for the country by about three half pence in the pound. From a statement in the Schoolmaster for September 4, 1897, it appears that in 20 per cent of the English boroughs, in 17 per cent of the English parishes, in 8.7 per cent of the Welsh boroughs, and in 23.4 per cent of the Welsh parishes the school board rate amounts to a shilling or above, the actual number of boards falling into the list being 440. Out of the 56 county boroughs 2 reach the London rate, viz, Coventry and York, and 13 exceed it. Among the latter are included Birmingham, Leeds, Leicester, Norwich, Nottingham, and Sheffield. Nineteen municipal boroughs also exceed the London rate.

The detailed statement of expenditure given below shows precisely what is comprised in the totals above presented.

Day schools.	Approximate expenditure.
School management committee:	
1. Salaries of teachers	$5,848,600
2. Instruction of pupil teachers	63,525
3. Books and stationery	322,605
4. Cookery, laundry, manual work, salaries of officers, and sundries	447,360
Works committee:	
5. Repairs to buildings and furniture	497,920
6. Wages of school keepers	289,280
7. Fuel, light, and water	196,350
Finance committee:	
8. Rates, rents, etc	470,185
9. Evening continuation schools	218,130
General:	
10. School buildings, etc., not chargeable to loan account	231,000
11. Enforcement of compulsion	237,700
12. Industrial schools	235,440
13. Office expenses	224,050
14. Interest on and repayment of loans	2,427,270
15. Legal expenses	6,860
16. Stamps and charges on loans	4,035
Total	11,722,360

In his estimates for the year 1896–97 the chairman shows an increase of $325,000 for teachers' salaries, which includes $100,000 for teachers in new schools, $25,000 for unattached teachers and special teachers for French, and "hand and eye" training in higher grade schools.

Other special items are thus explained by the chairman:

The training of the industrial faculties of students, including deaf and dumb, during the past year cost the board £62,546 ($312,730). As this work is increasing, the estimate of £58,700 ($293,500) of last year has been increased to £76,000 ($380,000) for the current financial year. This amount is undoubtedly getting very large, but I venture to think there is no expenditure of the board that will be more willingly borne by the rate payers than this burden which, as much as any other portion of the board's work, tends to increase the usefulness and value of the future citizens. I find that cookery instruction cost £19,000 ($95,000); that the laundry work cost £6,700 ($38,500), and that manual training cost £19,500 ($97,500). The cost of the schools for the special instruction of mentally defective children was £4,900 ($24,500). The instruction of the deaf, including the sum of £2,496 ($12,480) for maintenance of children taken over from the poor-law authorities, was £7,717 ($38,585); and the instruction of the blind, including the sum of £2,209 ($11,045) for boarding out 76 children, cost the rates £3,106 ($15,530). The cost of the maintenance of these children amounted to £4,705 ($23,525), and the contributions received from the parents toward the cost of maintenance of the children has amounted to £301 ($1,505).

I must again ask the board to bestow more than usual care upon the working of the act relating to these poor children, for, although the advantages to society, by enabling these otherwise helpless members of society to become helpful and useful members, must be very great and the money spent upon this object well laid out, the feeling of the perpetual responsibility for the proper care and maintenance of their offspring should be lessened as little as possible, and every care should be taken that, while not making the act unduly oppressive, contributions in accordance with the means of the parents should be insisted upon. The evening continuation schools have been making good progress during the past year, the

average attendance having increased from 13,976 to 15,761. This, however, must not be taken as indicating the number of students attending these classes, as a large number only attend on one evening in the week, which, consequently, only counts as one-third in average attendance. The books have not been fully made up, but when they are the number of students who have, for longer or shorter periods, made attendances at these classes will be found to be very little less than 50,000. The cost of these classes for the current financial year is estimated at £45,650 ($228,250), which will allow for a large increase in the average attendance.

As to the work of building necessary to keep pace with the ever-growing population the chairman says:

The additions in the shape of increased space now required, enlarged apparatus, and greater conveniences for each scholar over what was formerly the case must largely add to the cost per head. During the year tenders have been accepted for erecting 11 new schools and enlarging 17 others, and finished plans have been provided for 8 new schools and 9 other enlargements, besides a large number of cookery, laundry, manual training, housewifery centers, and schools for special instructions and the teaching of upper standards. I am glad, however, to see that the erection of iron buildings for temporary schools is on the decrease, as this is one of the most expensive items in connection with day schools.

It should be observed that the funds for the purchase of sites and the erection of buildings are borrowed by the board from the public works loan commissioners, in accordance with the provisions of the education law. During the year 1895–96 the sum of $3,000,000 was borrowed for this purpose, and the outstanding balance of the debt owed by the board on this account March 25, 1896, was $43,144,378.

PROVISION FOR SECONDARY AND TECHNICAL INSTRUCTION.

The foregoing statement, which relates wholly to elementary schools, conveys no idea of the provision that exists in London for continuing the education of the people into secondary and higher courses, excepting as these are represented in the class and specific subjects of the elementary programme. There are, however, numerous agencies, public and private, devoted to this purpose.

The most important of the public agencies is the technical education board. Under the technical education laws of 1889 and 1890 a local authority, such as the London County Council, may support manual instruction in schools and other institutions which are within its districts or in outside districts accessible to its students. The aid must not be given to schools conducted for private profit or for pupils in the elementary grade, hence its work is essentially public and of secondary or higher grade. The London County Council has delegated its powers in these respects to the technical education board.

The funds at the disposal of the board are applied in two ways: First, in providing scholarships; second, directly to institutions for laboratories, equipment, and special departments, or to meet the salaries of teachers of science, art, manual training, domestic economy, and commercial subjects in various schools.

The system of scholarships established by the board comprises the following:

(*a*) *Junior county scholarships.*—Commencing with children leaving public elementary schools after passing the sixth standard, the board has established a number of junior county scholarships, of which 600 are awarded every year. These scholarships include free education at certain secondary or higher-grade schools approved by the board, together with money payments in lieu of the wages which might otherwise be earned by the scholars, amounting during the first year to $40 and during the second year to $60, the scholarships being ordinarily tenable for two years.

* * * * * * *

Candidates must be under 13 years of age on the first day of the month in which the examination is held. They must have lived in London for at least one year previously to the award of the scholarship, and their parents or guardians must be in receipt of not more than $750 per annum, or, in the case of weekly wages, not more than $15 per week from all sources.

In 1895, the total number of candidates competing for the junior scholarships was 3,794 (2,337 boys, 1,457 girls); 1,829 passed, and 612 scholarships were awarded. The candidates came from 407 schools, of which 280 were board schools, 107 voluntary schools, and 20 secondary schools.

(*b*) The intermediate county scholarships established by the board are open to boys and girls under 16, who come from any school, secondary or upper standard. They give free education till the scholar is between 18 and 19, together with money payments rising from $100 to $175 a year, and are limited to candidates whose parents are in receipt of an income of not more than $2,000. They are tenable at public secondary schools or places of higher learning, and nearly all the leading schools of London, besides University College and Bedford College, have now some of the board's intermediate scholars in attendance. The board awarded 50 of these scholarships in 1894 and 70 in 1895.

(*c*) The senior county scholarships are intended to provide for a few specially promising students a training of university rank. Open as a rule only to persons under 19 years of age, they give free tuition at a college or technical institute, together with money payments of $300 a year, tenable for three years. The income limit for the parents is the same as for the intermediate county scholarships, viz, $2,000 a year. The board has hitherto awarded five of these scholarships a year, but in 1895 it awarded in addition seven "exhibitions" of varying values to candidates who were not successful in obtaining scholarships.

The board also offers each year a certain number of scholarships and prize funds in science and art to older candidates who have already entered into some industrial career as apprentices or skilled artisans. These include 20 scholarships of the annual value of $100 each, together with payment of tuition fees, tenable for two years. These scholarships are intended for students who will study in day schools of art.

Twenty artisan art scholarships, of the annual value of $100 each, together with payment of tuition fees, tenable for two years in the first instance but renewable for a third year. These scholarships are confined to those who are actually engaged in some trade requiring artistic handicraft.

One hundred prizes (exhibitions), of the value of $25 each, tenable for two years. These are intended to pay the traveling and incidental

expenses of students who wish to carry on their art studies in the evenings; also an equal number of prize funds of the same value, tenable in evening schools of science and technology.

In addition to the above scholarships, in 1895 the board awarded 314 scholarships in domestic economy, enabling girls to go through a five-months' course of training in cookery, dressmaking, and laundry work at the schools of domestic economy started by the board at several polytechnics and other centers. There are also awarded 12 training scholarships in domestic economy, tenable at the Battersea Polytechnic School of Domestic Economy for training teachers, and two horticultural scholarships, of the value of $300 a year for two years, tenable at the Swanley Horticultural College, Kent—one for men and one for women.

From the fourth annual report of the work covering the year 1895–96, it appears that the technical education board continues its policy of seeking to coordinate existing institutions and to increase their provision for technical education.

There are now no fewer than 98 separate institutions in London to a greater or less extent supported by the board and inspected by its officers.

Special attention has been paid to developing instruction for apprentices, improvers, and journeymen in the principal London industries. More than 200 well-equipped and efficient centers of practical instruction in various trades are now under the supervision of the board.

The character of the instruction given differs slightly, but, on the whole, it is of a kind that will assist industrial progress. As to instruction in electrical engineering, it is stated as a noteworthy fact that from 16 to 18 students from the Royal College of Science have been attending the evening classes for electrical engineers at the Southwest London Polytechnic Institute. This may be taken as good evidence of the polytechnic's efficiency.

London now has 11 polytechnic institutions, which have on their rolls probably not fewer than 40,000 separate members or students. Nearly all the polytechnics provide instruction in science, art, technology, commercial subjects, literary subjects, and domestic economy; and during the session 1895–96, before the Northampton Institute and the Northern Polytechnic were opened, the students registered at the London polytechnics, including the People's Palace and the Goldsmiths' Institute, in the several departments, were:

Science	8,371
Art	2,910
Technology	4,692
Domestic economy	2,678
Commercial subjects	8,244
Total	26,895

The 11 polytechnic institutes, according to the official report, may be estimated for the current session 1896–97 to be spending in all their departments a total of about $640,000 per annum, of which, roughly speaking, $145,000 will probably be provided by the city parochial trustees, $125,000 by the technical education board, $110,000 from city companies, $60,000 from private subscriptions and other endowments, $45,000 from Government grants, and $150,000 from students' fees, etc. The total capital expenditure can only be roughly guessed at, but it will certainly have exceeded $2,500,000. They may be expected to have in 1897–98 a total of about 45,000 separate students in all subjects, as compared with a corresponding total for 1892–93 of not more than 20,000.

The development of the higher departments at several of the polytechnics has during the last two or three years greatly increased the provision of higher instruction, especially in engineering, chemistry, and physics. In the new and well-equipped laboratories now provided at these institutions by means of the board's equipment grants, facilities are given for the student to pursue his work without a break from the elements of the subject up to the highest branches, and to undertake, in conjunction with his teacher, original investigation and research. A considerable addition has thus been made to the instruction of distinctly university rank now accessible to the London student, and it is estimated that, in addition to a large number preparing for matriculation, there are now over 100 matriculated students in the polytechnics who are definitely studying for London University degrees in science. This number constitutes no small proportion of the total of matriculated students for science degrees, other than those in the medical schools, who are studying in organized educational institutes in London.

This great development of instruction of university rank in new institutions has increased the importance of bringing about a more systematic coordination of university education in London. The board has accordingly continued to press for the early establishment of the promised new teaching university for London, toward the technical departments of which it is proposed the board should contribute. As a means of coordinating the different institutions providing university instruction in technical subjects, arrangements are in progress for courses of intercollegiate lectures, mainly in post-graduate and specialist subjects, which will be open to all students of the various institutions concerned.

Commenting upon the report, the London Globe says:

A special difficulty in the building trades is the indisposition of London employers to take boys into their service, either as apprentices or without any arrangements for their instruction. The inquiry made by the board in 1895 showed that 41 typical firms in various branches of the building trades, having 12,000 employees, had only 80 apprentices and 143 "learners," instead of 1,600, which would have been about the normal proportion. The London building trades are, in fact,

mainly recruited from the country. The result is not only that great difficulty is experienced by boys in obtaining situations where they can learn any branch of the building trade, but also that in the absence of the normal proportion of boys and young men the establishment of successful trade classes has been a specially onerous task. But the difficulties are now being overcome. The present session has seen a large increase in the number of students in building-trade subjects, there being over a thousand entries in building construction at the polytechnics alone, mainly by carpenters, joiners, bricklayers, masons, architects' assistants, and builders' clerks. The number of artisans attending classes in practical plane and solid geometry also shows an increase. There are now classes in building construction, architectural drawing, quantity surveying, and workshop drawing at 37 centers; in practical geometry and geometrical drawing at 40 centers, and in technical mensuration at 6 centers.

The influence of the board in promoting a high order of scientific training is shown particularly in the work of the polytechnics. According to a statement in Nature of June 10—

These institutions are moving toward a higher educational status than they occupied a few years ago. The courses of study are systematized, and they are supervised by teachers who have had laboratory experience, and hence they educate the mind as well as train the hand. An announcement that in the next session (1897-98) Principal Tomlinson, F. R. S., of the Southwest London Polytechnic, will establish a class for training in research affords an instance of the higher tendency of polytechnic instruction. This research training will form part of the curriculum of the second-year day electrical engineering students of the institute, but will be open to a limited number of other students, provided they can show a fair knowledge of the elementary principles of physics and mathematics. The method of conducting any research will be as follows: The principal will first select some subject for investigation suitable for electrical engineering students. He will then fully explain to the class the various reasons which have induced him to make the selection and will give a brief history of what has been previously done round and about the subject and full reference thereto. He will also propound a mode or modes of attacking the research and invite criticisms from the class. When the best mode of attack has been decided on, the class will be expected not only to take part in the experiments, but to help in preparing the required apparatus. Should the results obtained be of sufficient importance, they will be offered in the form of a paper to such societies as the Royal Society, the Physical Society, or the Institution of Electrical Engineers. From time to time during the investigations the principal will give demonstrations or lectures on those particular branches of magnetism and electricity which bear directly on the investigation and will illustrate them by the results obtained. The subject selected for the first research is "The effect of repeated heating on the magnetic permeability and electrical conductivity of iron and steel."

CHAPTER II.

EDUCATION IN FRANCE.[1]

France, Republic: Area, 204,092 square miles. Population (actual), April 12, 1891, 38,095,156; domiciled or legal, 38,343,193.

Civil divisions: For purposes of civil government, France is divided into 86 departments (90 if Algiers be included), each having its local legislative assembly formed by election. The departments are subdivided into arrondissements, and these into cantons. The smallest civil divisions comprised within the cantons are communes.

For previous articles see the following:

The educational system of France. (Report, 1888–89, Vol. 1, pp. 112–149.)

Report of the educational congresses and exhibition held in Paris, 1889. (Report, 1889–90, Vol. 1, pp. 41–186, by W. H. Widgery.)

Brief view of the educational system, with statistics, for 1888–89. (Report 1889–90, Vol. 1, pp. 249–261.)

Elementary education in London and Paris. (Ibid., pp. 263–280.)

Education in France: Statistics, 1890–91; progress of primary schools since Guizot's law, 1833; higher primary and classical schools of France. (Report, 1890–91, Vol. 1, pp. 95–124.)

Education in France: Outline of the system and statistics for 1892; State faculties; proposed transformations and development of teaching functions. (Report, 1891–92, Vol. 1, pp. 73–95.)

Civil service in France, by W. F. and W. W. Willoughby. (Ibid., pp. 369–412.)

Education in France: Outline view, with current statistics; inspection of infant schools; recent changes in the baccalaureate; reorganization of medical studies and of the scientific course preparatory thereto. (Report, 1892–93, Vol. 1, pp. 219–237.)

Education in France: Statistics for 1891–92–93; recent modifications in the department of secondary education; recent development of the faculties (universities); progress of the system of primary instruction; schools for adults; movements for the admission of American students to the universities of France. (Report, 1894–95, Vol. 1, pp. 289–312.)

Education in France: Statistics for 1894–95; summarized view of primary schools, proposed modifications of secondary institutions; the law of July 10, 1896, transforming the State faculties into universities, with elaboration of its motives and purposes, and details of the scholastic and financial status of the universities; requirements for the admission of aspirants for degrees; status of medical students in France, with special reference to foreigners; Dr. Alcée Fortier on the French lycées. (Report, 1895–96, Vol. 1, pp. 611–639.)

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[1] Prepared by Miss Anna Tolman Smith.

CONSPECTUS OF THE STATE SYSTEM OF EDUCATION, OR UNIVERSITY OF FRANCE.

France has a highly centralized system of education under a cabinet officer, the minister of public instruction and fine arts.[1] It is organized in three departments (superior, secondary, and primary), each under its own director. The minister is assisted by the superior council of public instruction, composed of eminent representatives of the three orders of instruction, 60 in number, one-fourth appointed by the President of the Republic and the remainder chosen by their peers. This council is the deliberative head of the university system. In certain cases of discipline affecting professors and teachers its decisions are final. The administration of the system is facilitated by its division into academies, 17 in number, each of which comprises, under the general direction of a rector (appointed by the minister), all the public institutions, i. e., primary schools, lycées, colleges, and universities of the respective districts. The rector must be a university man, holding the doctor's degree. By recent decrees and the law of July 10, 1896, the former State faculties have been transformed into universities. The State continues to appoint all professors and university officials, to prescribe requirements for admission and for degree examinations, to regulate fees, and to confer diplomas. The authority of the university, exercised through a council consisting of the academic rector, the deans of the several faculties, and two professors elected from each faculty, extends only to the adjustment of programmes, the control of students, of the income from tuition fees, and of the university property. Fifteen universities have been constituted under the law. To the department of superior instruction belong also special schools; one of these, the superior normal school, is designed to prepare professors for the service of higher education.

The department of secondary instruction comprises the lycées or State classical colleges (in number 109) and communal colleges (227) maintained by the combined aid of the State and local authorities. The professors in both classes of schools are appointed by the minister from candidates possessed of the university diplomas. Their salaries are paid by the State.

The scholastic and domestic affairs of the lycées (they are both boarding and day schools) are controlled by the minister and superior council. They have a double course, classical and modern, the former leading to the bachelors' degree. The studies of the local colleges are conformed as far as possible to the lycée programme. The State maintains also lycées and colleges for girls and a special normal school (Sèvres) to prepare professors for the same. The 86 civil departments of France (90 if Algiers be included) form also districts of educational administration within the academies. In the chief city of each

[1] Present minister, M. Rambaud, who succeeded M. Combes April 29, 1896.

resides an official (inspecteur d'académie), charged under the orders of the rector with the supervision of secondary instruction.

The department of primary instruction includes maternal schools, elementary primary and superior primary schools, and departmental normal schools.

The law of 1833 laid the foundation of the system by imposing upon communes the obligation to establish public schools. Under the Republic the system has been developed through legislation, an efficient central supervision, and substantial appropriations from the Government.

By law of June 16, 1881, primary instruction is gratuitous, and teachers must be provided with State diplomas (brevets de capacité). By law of March 28, 1882, primary education is compulsory (attendance upon private schools or home instruction meets the requirement), and public primary schools purely secular. By law of October 30, 1886, the studies and organization of the several classes of schools are determined and only lay teachers admitted to the service. By laws of June 19, 1889, and July 25, 1893, the State assumes the payment of the legal salaries. Communes provide residences for teachers and supplement the salaries. The teachers are appointed by the departmental prefect from lists of candidates offered by the departmental councils. These councils are composed of members of the superior council and directors of primary schools. They exercise advisory, and in certain cases judicial, functions in respect to primary schools.

For the service of primary instruction there is a graded series of State inspectors appointed by the minister, comprising (1) general inspectors, assigned each to a particular section, inspectors of special branches, inspectresses of maternal schools; (2) the "inspecteurs d'académie," who conduct the examinations for teachers' diplomas and have the general direction of primary schools; (3) primary inspectors, about 450 in number, one for every 150 schools; (4) medical inspectors.

The communal authorities have the chief voice in the choice of sites, buildings, etc., the mayors of communes have free access to the schools at all times, and local committees are appointed to keep watch over the schools. The communes must provide a fund (caisse des écoles) for the aid of indigent pupils. Every department must maintain a primary normal school for men and one for women, unless authorized to combine the two. Among the special schools comprised in the department of superior instruction the State maintains two normal schools (Saint Cloud for men, Fontenay-aux-Roses for women) to prepare teachers for the departmental normals.

The authority of the minister of public instruction extends, in a measure, also to private institutions of all grades. He grants the privilege of conducting private schools, which must conform to official requirements in respect to sanitary and hygienic conditions.

These schools were included by Napoleon among faculties in the decree of 1808, organizing the university. The same necessity gave rise to schools of medicine. These, created by physicians or municipalities, were in time brought under the imperial control, and became equivalent to, or appendages of, the faculties of medicine. Even in the Paris faculties, which never lost entirely their esprit de corps, teaching functions were not revived until 1823, when the medical faculty was reorganized and increased by the addition of 36 special professors (agrégés), whose duty it was to impart systematic instruction to medical students. In 1838 the faculty of law declared that every professor in that body ought to give at least three lessons a week. In 1840 an effort was made, at the instigation of Cousin, to create a teaching service in the faculties of letters and of science.

The importance of the teaching service has been fully recognized under the Republic, but its development in the faculties of letters and of science has been slow, and until a very recent date has benefited only candidates for the licentiate or for the examination for the title of agrégé (agrégation), essential, one or the other, for appointment as a professor in the lycées or secondary schools. Between 1875 and 1887–88 the number of students in the faculties increased from 9,963 to 17,630. In commenting on this fact, M. Fallières, minister of public instruction at the latter date, said: "In this increase there figure two entirely new categories of students—the student of science and the student of letters. No further back than 1876 these were so few, that they were not mentioned. At present our 2,358 students of letters and our 1,335 students of sciences are real students—permanent pupils of the faculties." The 27,035 students enrolled in 1896 included 6,507 in the faculties specified (letters 3,457, sciences 3,050).

Parallel with this movement, and in some degree an outcome from it, has been that for transforming the several faculties into organic bodies having a measure of independence and free initiative.

The culmination of the successive measures looking to this result is the law of last year (July 10, 1896), conferring the title of university upon the faculties. Each university is to have a council, consisting of the rector, the deans of the faculties, and two delegates from each faculty elected triennially by the professors. This council, subject in certain cases to the approval of the superior council of public instruction, will have control over the teaching, discipline, and property of the university. Since, however, the State will continue to appoint all professors and to pay their salaries, the council will have merely advisory power with respect to appointments and the creation, abolition, or modification of professorships, and with respect also to the income of the university. The maintenance of buildings will be the care of the university and must be defrayed from fees or endowments. The State will take the fees for examinations and State

diplomas, but all other fees will go to the university treasury. In accordance with the law, fifteen universities have been constituted in France. These must now depend largely upon the fees of students and the local resources which they can command, in which respects they present very unequal conditions. The annual receipts of Paris University are estimated at about $120,000; of Lyons, at $26,000. Besançon has not more than $140 and Clermont $160. Evidently, unless the smaller universities secure subsidies from the departments or municipalities, they will not be able to support the character which the law has imposed upon them. That this is clearly recognized is indicated by the addresses at the inaugural ceremonies which occurred at the opening of the winter semester.

At Paris the occasion was not marked by unusual festivities, for indeed the Paris faculties are not so deeply affected by the new law as those outside of the capital. The title which the law confers has never been entirely lost to this group, and the powers which it sanctions had been already conferred by a series of decrees dating back to 1885. [Decrees of July 25 and of December 28, 1885, empowering the faculties to hold and manage property, and constituting councils with powers similar to those conferred upon the university councils; decree of February 21, 1890, conferring the control of their resources and the management of their internal affairs, and law of April 28, 1893, conferring civil personality upon the faculties, and subsequent decrees, August 9 and 10, determining their financial and administrative powers.]

In his report for the year 1896, M. Gréard, president of the Paris council, reviews the history of the decade, showing the development inspired by the recent measures. The material equipment of the university has been greatly improved by the erection of new buildings and the reconstruction of the old. The new Sorbonne is the home of the faculties of letters and science. The faculty of law has its building remodeled. The faculty of medicine has new quarters and its laboratory facilities have been greatly increased.

Many new chairs have been created—2 in the faculty of Protestant theology, 7 in that of law, 2 in the faculty of sciences, 4 in letters, 1 in pharmacy, and the scope of the faculty of medicine has been enlarged by four complete courses. Besides these professorships there have been added many supplementary courses and lectures. The municipality has contributed liberally to this increase of material and scholastic resources. It is noticeable also that private benefactors have borne some part in the enrichment of this university. The Count de Chambrun has provided funds for a course in sociology; the city has endowed a chair of the history of the French revolution in the faculty of letters and in the faculty of sciences a chair of the evolution of organized beings. Besides these foundations about thirty private legacies and donations have been received for the creation of

prizes and scholarships. The belief is expressed that henceforth the generosity of individuals, by which the "institute" has long been favored, will find its way also to the university.

The additions to the university library have increased also year by year. In 1885–86 the number of volumes secured by purchase or gift was 5,430; in 1894–95 it was 13,604. The use of the library has increased proportionately. For 75,000 volumes consulted or borrowed in 1885 there were more than 100,000 in 1895.

Parallel with this growth has been that in the number of students, which rose from 10,679 in 1885 to 14,000 in 1895. In the latter number were included about 1,500 foreigners from Russia, Roumania, Germany, Turkey, Switzerland, and the United States. The report dwells also upon the several measures that have been adopted by the Government, upon advice with the faculties, intended to make instruction more thorough, to cultivate in the students more and more the habit and the passion for the scientific method, and in general to raise the standard of scholarship and to provide for the more complete mastery of special subjects.

In several universities of the provinces the opening ceremonies were brilliant and impressive.

This was particularly the case at Lyons, which ranks next to Paris, and of which the rector, Dr. Compayré, said in the inaugural address, "If Paris is without a peer, Lyons, with its 2,200 students, is without a companion."

Lyons has indeed contributed greatly to the restoration of the university name and state. The campaign inaugurated in 1889 by the "Société des Amis de l'Université" was nowhere more vigorously pressed than at this university seat. The efforts were not confined to the professors. The cause was ardently espoused by the press and the people, who elected councilors pledged to its support. The spirit spread throughout the region and was active in the smaller towns, notably at Bourg and at Puy. The chambers of commerce, industrial associations, and learned societies were all united in the endeavor. As the first fruits of the law so ardently desired, Dr. Compayré noted the gift of $20,000 from a benefactor of the restored university. The students' association, which took its impulse from the spirit excited by the celebration of the new Sorbonne in 1889, contributed greatly to the brilliancy of the Lyons festivities.

At the universities of Lille, Nancy, and Poitiers the ceremonies were marked by equal enthusiasm. The rector of the University of Lille expressed the utmost confidence in the continued liberality of the city, which has already by its efforts advanced its university to the first rank. The faculty of medicine announced the gift of $20,000 from a private source. The name of Pasteur was recalled with pride as the first dean of the faculty of sciences of this university.

The University of Aix-Marseille has great possibilities, which are somewhat clouded for the time by the jealousy of the two rival centers, Aix being the seat of the faculties of law and of letters and Marseille that of the faculties of sciences and of medicine and pharmacy. The endeavor to allay local jealousies by conferring the double name upon the university has been only partially successful. While the universities which have their seats in the great centers of commerce and industry enter upon the new order with great confidence, a different spirit is evinced in the smaller universities. The burden imposed upon the latter was freely admitted at Caen, which sees its ablest students irresistibly attracted to Paris to finish their studies, and which can not hope for municipal subsidies comparable with those of Bordeaux, of Lyons, of Lille, and Marseille. There remains simply the hope that in such cases the university may draw support from the entire academic region. Thus Caen would become the "University of Normandie," adapting itself to the special interests of the region—agricultural, commercial, or industrial—giving large place to the study of local history, the old Norman tongue, Norman laws and monuments, and drawing thereby the sympathies of those who are descended from Norman ancestry and identified with the region and the history of which the university will become the exponent.

The opinion seems to be general that France will not be able to maintain fifteen universities of first rank, and that several of those now constituted will eventually be eliminated, or possibly transformed into special schools.

A new university doctorate open to foreigners.—The superior council of public instruction has decided that French universities may create a doctorate which will be purely scientific, and for which the French diplomas of "bachelier" and "licencié" are not necessarily required. The degree is open alike to natives and foreigners, and it is not required that candidates should have effected the whole of their studies in France.

The following is the text of the decree to this effect, passed July 9 of the present year:

> Besides the degrees established by the State the universities are empowered to institute titles of a nature purely scientific. These titles shall confer none of the rights and privileges attached by law and regulation to the degrees, and shall in no case be declared a substitute.
>
> The studies and examinations which shall attend their distribution shall be subject to regulations deliberated by the council of the university and approved by the standing committee of the superior council of public instruction. The diplomas shall be delivered in the name of the university, by the president of the council, in forms different from the forms of those delivered by the Government.

Up to the present time all diplomas in France have been granted by the State, not by the universities. These diplomas carried professional priviliges and other rights of importance chiefly to French

citizens, and were guarded by necessary formalities with which foreigners, and Americans in particular, found it almost impossible to comply.

DEPARTMENT OF SECONDARY INSTRUCTION.

Scope of secondary schools.—Secondary instruction is a term of somewhat different application in France from that which it has in the United States. The typical secondary schools are the lycées or State classical colleges, long the central feature of the university system, and the church schools (établissements congréganistes) of similar grade. Pupils enter these institutions (either as boarders or day pupils) at about 8 years of age, having already mastered the elements of reading and writing, and remain until their general education is complete. The great end in view is the bachelor's degree, which is the prerequisite to official and professional careers and to social recognition. If a student is able to maintain the maximum of effort, the final examination may be passed and the coveted prize secured at 18 years of age. As a rule, however, pupils do not complete the ten years' course without duplicating one or two years' study. It will be understood from the statement that the secondary school of France is not a grade between elementary and superior institutions, as in this country, but is a school for the complete education of the higher social classes.

Altogether there are for boys five classes of secondary establishments, between which in 1895 the entire enrollment of secondary pupils, 180,791, was distributed as follows:

Institution.	Proportion of students.
	Per cent.
Public lycées and communal colleges	47.37
Church schools	32.10
Small seminaries (clerical)	13.92
Private institutions	6.61

As all degrees are conferred by the State, the examinations being conducted by professors specially detailed for that service, it follows that the course of study prescribed for the lycées (State classical colleges) determines that of all the other secondary schools. The lycée has both a classical and modern course, but since the former leads to the bachelor's degree, it embodies the present ideal of secondary instruction. The programme now in force has been given in full in recent reports of this office,[1] but some repetition of it is desirable for an understanding of the present situation. To premise, the lycée is organized in three sections—elementary (years 8 to 11), grammar (years 11 to 14), superior (14 to 18).

Promotion from one section to the other is secured by examination.

[1] See in particular the report for 1890-91, vol. 1, pp. 120-124.

The studies of the higher section may suffice to indicate the preparation required for the bachelor's degree. They comprise in the third or lowest class of the section, the second class, and class of rhetoric the following: French grammar, literature, and composition; German or English; history of Europe, and of France in particular; geography, mathematics, drawing, Latin, and Greek, and in the second class also, the history of literature (Greek, Latin, and French). The full programme in mathematics, Latin, and Greek for the class of rhetoric (age, 16 years) is as follows:

Mathematics.—One and a half hours per week. Arithmetic: Review through square root. Algebra: Review and continuation through equations of the second degree. Geometry and cosmography: Solid geometry finished—through the sphere; the celestial sphere; earth, sun, time, moon, eclipses, planets, stars, universal gravitation, tides.

Latin.—Four hours a week. Portions of Lucretius, Virgil, Horace, Cicero, Livy, and Tacitus.

Greek.—Four hours a week. Portions of Homer, Sophocles, Plato, and Demosthenes.

After rhetoric comes the first examination for the bachelor's diploma; then follows the class of philosophy, which offers a choice between letters and science; from this class the student passes to the final examination. It will be seen that this programme is comparable to that of an American preparatory school, with two years of college added.

The communal colleges, which are established by local authorities with the aid of the State, offer, so far as practicable, the same course as the lycées. Few of them, however, are able to cover the complete programme.

Rivalry between State and church secondary schools.—Since the secondary establishments are in reality the colleges or schools of liberal culture, exercising through their graduates an immense influence upon society, the State has every motive for seeking to draw students to its own secondary schools; hence it views with alarm the growing ascendency of the clerical establishments. By reference to the table given below it will be seen that while the number of pupils in the public secondary schools has remained nearly stationary for the four years compared, the attendance in the two classes of church schools has greatly increased, rising from 75,035 in 1892 to 82,657.

Classes of institutions.	Enrollment.				Number of institutions in 1895.
	1892.	1893.	1894.	1895.	
Lycées (public)	52,945	53,974	53,490	53,962	109
Communal colleges (public)	32,508	32,700	32,421	33,161	227
Church schools	51,087	51,377	56,265	57,250	397
Small seminaries (clerical) (petits seminaires)	23,948	23,849	25,354	25,407	142
Private establishments	16,306	14,028	14,214	13,011	218

The causes of the movement indicated by the above statistics have been set forth in an official statement, which does not, however, pretend to be exhaustive. They are, as enumerated, increase in tuition fees and living expenses; the cost of books and apparatus; too frequent changes in the courses of study; uncertainties respecting the position of the répétiteurs or tutors, who sustain close relations to the pupils; the want of united interest and sympathies on the part of the officers and professors; the excessive officialism and consequent diminution of the personal influence of professors, and the want of relations between the State secondary and primary schools. It is also recognized that the development of the superior primary schools (public high schools) has had some effect in reducing the attendance upon public secondary schools. From details furnished in the report it appears that the day pupils (externes) are at a peculiar disadvantage, as they must buy the text-books, at a cost of about $10 a year, or $100 for the complete course, whereas these are furnished gratuitously to boarders (internes), save that the parents must pay a small charge (about $2.40 a year) for the wear of the books. This is regarded as an unjustifiable discrimination that should be corrected. Already a revision of the fees for tuition is in progress, with a view to reduction, but this can not be accomplished at once, as it necessitates changes in the appropriation. The other causes that are believed to prevent the growth of the State schools are inherent in the system and can be reached only through a transformation, which seems to be gradually taking place.

While the status of the State schools with respect to attendance is not wholly satisfactory, it is noted in the official report that they contribute a much larger proportion of students to the special schools of the highest order, than the rival institutions. This is an important matter, as these graduates enter eventually into the most influential public services. The following table is presented to show the comparative standing of the several classes of schools in this particular:

Name of special school.	Number of students entering the special schools from—											
	Lycées, colleges, and other establishments of the State or of the city of Paris. (Prytanée, Chaptal, etc.)				Private establishments having special relation to the State schools. (Ste. Barbe, Stanislas, etc.)				Private establishments, lay and clerical.			
	1892.	1893.	1894.	1895.	1892.	1893.	1894.	1895.	1892.	1893.	1894.	1895.
Superior Normal School	41	41	42	41	1	1	1	1	.....	.....	.....	.....
Polytechnic School	185	180	174	165	41	38	26	32	38	31	23	35
School of Saint Cyr	301	316	416	365	34	41	49	51	90	121	139	136
Naval School	43	40	44	42	7	12	6	13	20	23	25	21
Central School	138	150	160	145	27	45	24	27	97	63	71	74
Agronomic Institute	.....	25	44	44	.....	18	21	14	.....	2	29	30

It is an interesting fact that while clerical influence seems just now to threaten the ascendency of the lycées, the State secondary schools and classes for girls established under the law of 1880 appear to be

overcoming the prejudices which they at first encountered. At least such is the inference from the growth in enrollment shown in the following statistics:

Public lycées, colleges, and secondary courses for girls.

Date.	Enrollment.	Date.	Enrollment.
1892	12,744	1894	14,140
1893	13,514	1895	14,436

The administration and studies of these institutions are managed with special reference to the aptitudes, needs, and probable careers of young women. Pupils enter at 12 years of age. The course is divided into two periods of three and of two years, respectively, thus allowing five years for the full period. A sixth year may be added for students who desire to prepare for admission to superior institutions or for special vocations.

State appropriations.—For buildings and equipments alone the State has contributed to secondary institutions since 1878 the sum of $22,173,333, of which a little above $2,000,000 went to the secondary schools for girls. The annual appropriations for the current expenses of the lycées and communal colleges (for boys) and the public secondary schools for girls have been as follows for the years named: 1894, $4,038,248; 1895, $4,073,165; 1896, $4,096,447.20.

The distribution of the appropriation for 1896 was as follows:

Administrative purposes	$29,200.00
State lycées	2,190,400.00
Communal colleges	730,756.80
Secondary schools for girls	410,090.40
Scholarships and funds for remitted fees	736,000.00

The receipts from the lycées are turned into the State treasury. About one-third of the lycées contribute to the treasury more than they receive from it. The remainder do not cover their own expenses. However, the total annual receipts are in general in excess of the current expenditures, the balance accruing to the State being $18,633 in 1896.

The number of State scholarships accorded in 1896 was 3,315 in the lycées and 1,636 in the communal colleges. These are secured by competitive examination. Remission of fees is made in favor of the sons and grandsons of teachers and professors in public schools—that is, in the university service. Complaint is made that the number of scholarships and gratuities has become excessive. It is urged, on the other hand, that the church makes liberal provision, the exact extent of which is unknown, for poor but promising youths and that the State can not at this time afford to diminish the inducements it holds out to students entering upon secondary instruction.

Proposed changes.—The difficulties in the way of desirable changes

in the system of State secondary education are very great, as shown by the efforts of half a century. The most important measure now under consideration relates to the baccalaureate. This diploma has been the subject of proposed reforms for the last decade. Successive ministers of public instruction have embodied their ideas in projects of law, which have been submitted, provoked discussion, and then abandoned. The latest project emanates from the present minister, M. Rambaud, who, without attempting radical changes, would greatly reduce the element of chance in the conditions upon which the diploma is secured. To this end he proposes to give greater weight to the student's record, as shown in his report book (livret scolaire), and to reconstitute the examining bodies so as to include therein "agrégés" or assistant professors who actually teach in the secondary schools. As the project will probably suffer the fate of its predecessors, its details need not be rehearsed. American readers will be more interested in the discussion of the scholastic and social bearings of the diploma called forth by these projects. These are graphically presented in recent articles by M. E. Boutmy, the distinguished writer on moral and political sciences and director of the Paris School of Political Science.

The immediate occasion of M. Boutmy's articles was a project of law offered by the minister preceding M. Rambaud and differing substantially from his own. As this project failed, it will suffice to say here that it proposed to reduce the obligatory part of the baccalaureate examination and to increase the electives, and, further, that the diploma should indicate precisely the subjects in which the candidate had achieved success. The project was favored by M. Boutmy as a means of eliminating the caste tendencies of the diploma and also of freeing the courses of secondary instruction from a paralyzing dependence upon the State examinations.

Extended citations from these articles are presented in an appendix to this chapter.

As regards the programme of studies for the lycées, these have remained unchanged since 1890. Slight modifications have been attempted, one, the introduction of Latin a year earlier than that assigned in the programme, namely, in the seventh or highest class of the preparatory section.

The experiment has, however, been abandoned, as has also that of using the modern pronunciation in Greek classes, which was given up after four months' trial.

The removal of Greek from the class of obligatory subjects has been seriously urged from time to time, but the proposition serves only as an occasion for arguments pro and con. The prevalence of the same discussion in our own country gives interest to a recent address of M. Michel Bréal on the importance of Greek, which is included among the appended papers.

DEPARTMENT OF PRIMARY INSTRUCTION.

The latest official report of the department of primary instruction is for the year 1894–95, a résumé of which was presented in the Commissioner's last report (1895–96). The principal statistics are also repeated in this report (tables, p. 32).

New law respecting teachers' salaries.—The law with respect to the classification and salaries of teachers passed July, 1893, goes into effect the present year. The chief modification which it introduces is in the classification of teachers of the elementary primary schools. The teaching force consists of probationers (stagiaires) and full teachers (titulaires). The former, under the new law, comprise 15 per cent of the total number in place of 20 per cent, as under the previous law, and the annual salary is raised from $160 to $180.

The "titulaires" are divided into five classes. The proportion that each class bears to the total force under the two laws, and the salaries which remain unchanged under the new law, are as follows:

Classes of teachers.	Percentage of total number in each class.		Annual salaries.	
	Law of 1893.	Law of 1889.	Men.	Women.
Fifth class	25	35	$200	$200
Fourth class	25	25	240	240
Third class	20	15	300	280
Second class	10	5	360	310
First class	5		400	320

Observation.—An additional sum of $40 is allowed principals in charge of a school of three or four classes, and of $80 for a school of more than four classes. Communes may and often do supplement these salaries. Moreover, every commune must provide its teachers with free residence or with a money indemnity for the same at fixed rates.

It will be seen that the increase of the proportion of teachers in the third, second, and first classes increases the advantages that the service offers, and at the same time calls for larger appropriations from the State, which pays the salaries.

The principle of a fixed proportion of teachers in each class met with decided opposition in the Chamber of Deputies, and the abolition of these "percentages" in the classification of the teachers of the superior primary (high) schools and in the primary normal schools is regarded as an important triumph.

The salaries of directors and directresses of the two classes of schools remain unchanged. They are as follows:

	Superior primary schools.	Normal schools.	
	Men and women.	Men.	Women.
Fifth class	$360	$700	$600
Fourth class	400	800	700
Third class	450	900	800
Second class	500	1,000	900
First class	560	1,100	1,000

The salaries of assistant teachers in the superior primary schools and of professors in the normal schools are fixed at the following rates:

	Superior primary (assistant teachers).	Normal schools (professors).	
	Men and women.	Men.	Women.
Fifth class	*a* $240	*a* $500	$440
Fourth class	*a* 280	*a* 540	480
Third class	320	*a* 580	520
Second class	380	620	560
First class	*a* 440	680	600

a Increase of $20 over the former salaries.

The State is responsible only for the legal salary of the primary teachers (elementary and superior), and as a rule these are increased by the communes. Thus in Paris the directors of the higher primaries receive as a minimum salary $1,400; maximum, $1,800; full professors from $760 to $1,000.

Scope and progress of superior primary schools.—Superior primary (high) schools are nonclassical high schools which carry the instruction of pupils for two, three, or four years beyond the elementary primaries. They were authorized by Guizot's law of 1833, which also prescribed a programme comprising an extension of the subjects of the lower primaries, with the addition of linear geometry with its useful applications, surveying, elements of the physical sciences, and natural history, with their practical applications. It was further provided that the courses should be specially developed in subjects required by local conditions. The establishment of schools of this grade was made obligatory for communes of more than 6,000 inhabitants. The execution of the law was long delayed by political vicissitudes, and, outside of a few cities which established high schools of the general character indicated without aid from the State, they had no existence until a comparatively recent date. The municipal high schools soon became noted for the excellence of their scientific courses and the artistic and technical skill manifested by their graduates.

In 1878 the General Government indicated its purpose of fostering higher primary schools by a credit of $22,000 to aid communes in their establishment. This appropriation has been augmented year by year, and has proved a great stimulus to local effort.

Peculiar complications arose from the endeavor to class in the same category schools for general instruction and a class of schools industrial or commercial in their character (écoles professionelles) that had been established in a few cities. The development of both classes of schools was retarded until the school law of 1886 prescribed explicitly the scope, studies, and general management of all schools classed as primary.

It soon became evident that high schools with a purely literary curriculum were likely to crowd out those having a technical character, and as this was regarded as a national misfortune measures were taken to increase the provision of the latter class. Accordingly, in 1892 a department of technical instruction was created in the ministry of commerce and industry, and appropriations covering salaries and many other expenses were offered through this ministry for schools giving instruction in commerce and industry to pupils from the elementary schools. Such schools were also transferred to the jurisdiction of the ministry of commerce and industry, and are known as practical schools of commerce and industry. By this arrangement the minister of education was left free to develop higher primary schools of a more educative character.

The purpose, however, was not to increase the literary influence of higher primaries, and the regulations issued since 1892, especially the official programmes of 1893 and also the actual course which these schools have taken, show a strict adherence to the purpose of making them schools for practical training.

Under the regulations of 1893 every higher primary school may have, in addition to its general course, special sections—industrial, commercial, or agricultural. Schools in which these technical departments are distinctly developed come under the direction of the minister of commerce and industry with respect to the same, but as regards teachers and general programmes remain under the minister of public instruction. The various measures indicate the double purpose of fostering manual skill and technical knowledge among the more promising youth of the laboring classes and at the same time extending the scope of their general education.

The initial stage of the higher primary school is often an advanced course (cours complémentaire) annexed to the lower primary and under the same director. These higher primary schools are supported by the combined efforts of the State and the communes. The State assumes the legal salaries of the regular staff, which amounts to about five-sevenths of the total salaries required to maintain the full complement of teachers. The municipality (commune) must pay the

salaries of teachers in charge of the workshop and also of the persons employed as technical and industrial teachers.

The expense for buildings, furniture, apparatus, etc., must also be met by the commune.

The State assists in bringing the provision within the reach of poor but promising youth by a system of scholarships. These are of three classes:

(*a*) "D'internat," to cover or partially cover the expenses of pupils in boarding schools, not to exceed $100 per annum.

(*b*) "Familiales," to pay for boarding out the scholar in a private family when his home is at a long distance from the school and the latter has no boarding house; value, $100.

(*c*) "D'entretien," to pay the parents for the scholar's food, clothes, traveling expenses, etc., and to help toward making good the sacrifice of his wages while he is kept at school (varying from $20 to $80).

Candidates must not be less than 12 or more than 15 years of age. The scholarships are tenable for three years, with possible extension to a fourth year.

These scholarships are secured by strict competitive examination and only by successful candidates who can prove that they would be unable without the assistance to continue their studies. The number of State scholarships awarded in 1892 was: To boys, 674; to girls, 436, or a total of 1,110. The departments and communes also provide scholarships.

Under the admission requirements prescribed by the minister for all pupils, no child can enter the higher primaries unless he has obtained the "certificate of primary instruction" and has passed a year in the highest standards of the elementary schools, or if educated privately can prove equivalent attainments.

The recent increase in the number of these establishments is indicated by the following statistics:

In 1878 they numbered only 40. In 1887 there were 255, besides 431 complementary courses. At this date 47 private schools of the same grade were reported. The total enrollment, public and private schools, was 38,441. In 1892 the situation was as follows:

France and Algiers.

	Number of schools.			Enrollment.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Public schools:						
Two years' course	71	30	101	20,461	7,415	27,876
Three or more years	133	47	180			
Private schools	10	11	21	2,305	1,360	3,755
Complementary courses:						
Public	351	131	482	9,950	4,018	13,968
Private	151	380	531			
Grand total	716	599	1,315	32,806	12,793	45,599

The increase in enrollment in five years, it will be seen, was 7,158 pupils.

Among the public schools are included 47 which are essentially technical, and as such under the joint control of the two ministers, as already specified.

The following additional particulars with respect to this feature of the primary-school system of France are from a very exhaustive report on the subject by Mr. R. L. Morant, assistant director of the recently created department of special inquiries and reports in the English department.[1]

Organization.—One very important point should here be noted; both the "cours complémentaires" and the higher primary schools are, in intention, "écoles régionales;" that is to say, though their creation and maintenance is decided upon and paid for by one commune or town, most of them serve the needs, not only of the town itself, but of all the surrounding districts. Many of them draw pupils from a radius of several leagues, and, though the town itself has borne all the expense of establishing and maintaing the schools, no restrictions are as a rule placed upon the district from which scholars are admitted.

As a result of being "écoles régionales," a large number both of the higher primary schools and of the "cours complémentaires" have boarding houses. These are built by the town at the same time as the rest of the school.[2]

Sometimes they are managed by the town under a salaried "économe" or burser and bring in actual profits to the town budget; but in the vast majority of cases, in the provinces at least, they are left to the charge (and profit) of the director of the school. Half the boys' higher primary schools and two-thirds of those for girls have "internats," i. e., are at least partly boarding schools. This is the case also with half the boys' "cours complémentaires" and nearly one-third of those for girls. There is thus in France practically a widespread system of municipal boarding schools, with the staff supplied at the expense of the State.

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As regards the standard of admission to the school, the central authority has attempted to raise the general level by various means, and to confine the admission more strictly to the élitê of the elementary schools, by requiring that no pupil be admitted unless, besides holding the elementary certificate, he has passed a year in the highest standard of the elementary school. In many places there is also an entrance examination, the standard of which is practically decided upon by the local authority, and sometimes considerably raises the standard of the school. And in a few of the largest towns, where the number of candidates is greater than the number of vacancies, this examination comes to be a competitive examination. In Paris there is one simultaneous public examination for all the higher primary schools. The successful candidates, i. e., those who pass a certain standard of marks, are ranged in order of merit, and are then called upon (in this order) to choose the school to which they prefer to go, according to the number of vacancies that are available in each. There is also an examination at the end of each quarter, of which the results are sent to the parents. These examinations are a great stimulus to hard work, and assist also in pointing out the pupils who would be unable to profit by a continued stay at the school. These are invariably "advised" to leave. It is very generally understood, and is carried into practice, that one of the most important duties of the director is to advise parents for and against the continuance of the children's attendance at the school, as also in the matter of choosing the particular section (commercial, industrial, etc.) which he shall enter. The director's opinion is invariably (and, indeed, statutorily) decisive on the former point, besides being very generally paramount as to the latter.

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This annual examination and its consequences is one of the most striking features of the system, and admirably prevents any waste of public funds and of teacher's energy in vain attempts to educate children who are not capable enough to profit by their opportunities.

Mention must also be made of the important part played in the actual management of each school by its "comité de patronage." The composition of each committee of managers is fixed by the education department on the nomination of its local representative. The director or directress of the school is an ex officio member, as also is the primary inspector of the district and the chief inspector of the province. In the case of girls' schools there must be a certain number of ladies on the committee. The committee nominates its own president and secretary. It

meets at least twice in each year, at the summons of the president, and in special cases when convened by the president or by the provincial inspector. At its ordinary meetings it nominates a subcommittee to visit the school at least once a month and report to the committee at the next meeting. The committee is intrusted with the general supervision of the schools and of all that pertains to its efficiency and the interests of the pupils. It takes the latter under its patronage and endeavors to settle them in suitable occupations at the end of their school course. The pupils holding State scholarships are especially under the care of the committee.[1] It further deals with all matters of school requisites and furniture and decides on the measures to be taken to adapt the special instruction to the local requirements, industries, manufactures, agricultural or other occupations. For this purpose all prominent business men in the locality are nominated on these committees.

Curriculum.—The first year's course is the same for all pupils who enter the school, no specialization being permitted till the commencement of the second year. It is then that the student decides, generally under the advice of the director, the particular section in which he will pursue his course. The particular characteristics of each of the sections (general, commercial, industrial, and agricultural) appear in the number of hours allotted to the different subjects in each section respectively. There are six subjects, however, which do not vary at all, being considered to represent the basis of all instruction, and to be, therefore, necessary to every section alike. Thus morals, handwriting, history, civic instruction, gymnastics, and singing are taught one hour a week each, both to boys and girls, in all three years and in all the sections, and boys have two hours and girls one hour for physics and chemistry in all three years in all sections. Elementary notions of common law and political economy are taught one hour a week in the third year of each section both to boys and girls.

The other subjects of instruction vary considerably in the different sections.

Thus, for modern languages, the general section has three hours a week in all three years both for girls and boys, while in the commercial section this is raised to four hours for both and in the industrial section it disappears entirely for boys, being replaced by additional mathematics, science, and manual work. The girls' industrial section, however, retains three hours a week for modern languages and does not increase the mathematics.

Similarly, drawing and modeling, both for boys and girls, is given four and a half hours a week in the industrial section, three hours in the general section, and only one and a half in the commercial section. Both the commercial and industrial sections make up for their increase of special subjects by reducing their French language and literature.

Each section, has of course, its own specialties. The chief characteristic of the general section is the amount of time given to French language and literature—from three to five hours a week for boys and girls alike. It is from this section that the normal colleges are largely recruited, and "general culture" is considered its main purpose.

The industrial section is naturally characterized by more mathematics and technical drawing, and also by its manual work, "travaux manuels," which take six hours a week, as contrasted with two hours in the commercial section.

The characteristics of the commercial section are, as would be expected, bookkeeping and languages, the former being represented by three hours a week, as compared with one hour in the other sections, and the latter by four hours a week. There is also an additional hour for commercial geography.

The agricultural section, in its turn, has no modern languages, very little draw-

[1] See Elementary Education in France. Simpkin, Marshall & Co., London, 1891, page 85.

The causes of the movement indicated by the above statistics have been set forth in an official statement, which does not, however, pretend to be exhaustive. They are, as enumerated, increase in tuition fees and living expenses; the cost of books and apparatus; too frequent changes in the courses of study; uncertainties respecting the position of the répétiteurs or tutors, who sustain close relations to the pupils; the want of united interest and sympathies on the part of the officers and professors; the excessive officialism and consequent diminution of the personal influence of professors, and the want of relations between the State secondary and primary schools. It is also recognized that the development of the superior primary schools (public high schools) has had some effect in reducing the attendance upon public secondary schools. From details furnished in the report it appears that the day pupils (externes) are at a peculiar disadvantage, as they must buy the text-books, at a cost of about $10 a year, or $100 for the complete course, whereas these are furnished gratuitously to boarders (internes), save that the parents must pay a small charge (about $2.40 a year) for the wear of the books. This is regarded as an unjustifiable discrimination that should be corrected. Already a revision of the fees for tuition is in progress, with a view to reduction, but this can not be accomplished at once, as it necessitates changes in the appropriation. The other causes that are believed to prevent the growth of the State schools are inherent in the system and can be reached only through a transformation, which seems to be gradually taking place.

While the status of the State schools with respect to attendance is not wholly satisfactory, it is noted in the official report that they contribute a much larger proportion of students to the special schools of the highest order, than the rival institutions. This is an important matter, as these graduates enter eventually into the most influential public services. The following table is presented to show the comparative standing of the several classes of schools in this particular:

Name of special school.	Number of students entering the special schools from—											
	Lycées, colleges, and other establishments of the State or of the city of Paris. (Prytanée, Chaptal, etc.)				Private establishments having special relation to the State schools. (Ste. Barbe, Stanislas, etc.)				Private establishments, lay and clerical.			
	1892.	1893.	1894.	1895.	1892.	1893.	1894.	1895.	1892.	1893.	1894.	1895.
Superior Normal School	41	41	42	41	1	1	1	1	.....	.....	.....	.....
Polytechnic School	185	180	174	165	41	38	26	32	38	31	23	35
School of Saint Cyr	301	316	416	365	34	41	49	51	90	121	139	136
Naval School	43	40	44	42	7	12	6	13	20	23	25	21
Central School	138	150	160	145	27	45	24	27	97	63	71	74
Agronomic Institute	.....	25	44	44	.....	18	21	14	.....	2	29	30

It is an interesting fact that while clerical influence seems just now to threaten the ascendency of the lycées, the State secondary schools and classes for girls established under the law of 1880 appear to be

overcoming the prejudices which they at first encountered. At least such is the inference from the growth in enrollment shown in the following statistics:

Public lycées, colleges, and secondary courses for girls.

Date.	Enrollment.	Date.	Enrollment.
1892	12,744	1894	14,140
1893	13,514	1895	14,436

The administration and studies of these institutions are managed with special reference to the aptitudes, needs, and probable careers of young women. Pupils enter at 12 years of age. The course is divided into two periods of three and of two years, respectively, thus allowing five years for the full period. A sixth year may be added for students who desire to prepare for admission to superior institutions or for special vocations.

State appropriations.—For buildings and equipments alone the State has contributed to secondary institutions since 1878 the sum of $22,173,333, of which a little above $2,000,000 went to the secondary schools for girls. The annual appropriations for the current expenses of the lycées and communal colleges (for boys) and the public secondary schools for girls have been as follows for the years named: 1894, $4,038,248; 1895, $4,073,165; 1896, $4,096,447.20.

The distribution of the appropriation for 1896 was as follows:

Administrative purposes	$29,200.00
State lycées	2,190,400.00
Communal colleges	730,756.80
Secondary schools for girls	410,090.40
Scholarships and funds for remitted fees	736,000.00

The receipts from the lycées are turned into the State treasury. About one-third of the lycées contribute to the treasury more than they receive from it. The remainder do not cover their own expenses. However, the total annual receipts are in general in excess of the current expenditures, the balance accruing to the State being $18,633 in 1896.

The number of State scholarships accorded in 1896 was 3,315 in the lycées and 1,636 in the communal colleges. These are secured by competitive examination. Remission of fees is made in favor of the sons and grandsons of teachers and professors in public schools—that is, in the university service. Complaint is made that the number of scholarships and gratuities has become excessive. It is urged, on the other hand, that the church makes liberal provision, the exact extent of which is unknown, for poor but promising youths and that the State can not at this time afford to diminish the inducements it holds out to students entering upon secondary instruction.

Proposed changes.—The difficulties in the way of desirable changes

in the system of State secondary education are very great, as shown by the efforts of half a century. The most important measure now under consideration relates to the baccalaureate. This diploma has been the subject of proposed reforms for the last decade. Successive ministers of public instruction have embodied their ideas in projects of law, which have been submitted, provoked discussion, and then abandoned. The latest project emanates from the present minister, M. Rambaud, who, without attempting radical changes, would greatly reduce the element of chance in the conditions upon which the diploma is secured. To this end he proposes to give greater weight to the student's record, as shown in his report book (livret scolaire), and to reconstitute the examining bodies so as to include therein "agrégés" or assistant professors who actually teach in the secondary schools. As the project will probably suffer the fate of its predecessors, its details need not be rehearsed. American readers will be more interested in the discussion of the scholastic and social bearings of the diploma called forth by these projects. These are graphically presented in recent articles by M. E. Boutmy, the distinguished writer on moral and political sciences and director of the Paris School of Political Science.

The immediate occasion of M. Boutmy's articles was a project of law offered by the minister preceding M. Rambaud and differing substantially from his own. As this project failed, it will suffice to say here that it proposed to reduce the obligatory part of the baccalaureate examination and to increase the electives, and, further, that the diploma should indicate precisely the subjects in which the candidate had achieved success. The project was favored by M. Boutmy as a means of eliminating the caste tendencies of the diploma and also of freeing the courses of secondary instruction from a paralyzing dependence upon the State examinations.

Extended citations from these articles are presented in an appendix to this chapter.

As regards the programme of studies for the lycées, these have remained unchanged since 1890. Slight modifications have been attempted, one, the introduction of Latin a year earlier than that assigned in the programme, namely, in the seventh or highest class of the preparatory section.

The experiment has, however, been abandoned, as has also that of using the modern pronunciation in Greek classes, which was given up after four months' trial.

The removal of Greek from the class of obligatory subjects has been seriously urged from time to time, but the proposition serves only as an occasion for arguments pro and con. The prevalence of the same discussion in our own country gives interest to a recent address of M. Michel Bréal on the importance of Greek, which is included among the appended papers.

DEPARTMENT OF PRIMARY INSTRUCTION.

The latest official report of the department of primary instruction is for the year 1894–95, a résumé of which was presented in the Commissioner's last report (1895–96). The principal statistics are also repeated in this report (tables, p. 32).

New law respecting teachers' salaries.—The law with respect to the classification and salaries of teachers passed July, 1893, goes into effect the present year. The chief modification which it introduces is in the classification of teachers of the elementary primary schools. The teaching force consists of probationers (stagiaires) and full teachers (titulaires). The former, under the new law, comprise 15 per cent of the total number in place of 20 per cent, as under the previous law, and the annual salary is raised from $160 to $180.

The "titulaires" are divided into five classes. The proportion that each class bears to the total force under the two laws, and the salaries which remain unchanged under the new law, are as follows:

Classes of teachers.	Percentage of total number in each class.		Annual salaries.	
	Law of 1893.	Law of 1889.	Men.	Women.
Fifth class	25	35	$200	$200
Fourth class	25	25	240	240
Third class	20	15	300	280
Second class	10	5	360	300
First class	5		400	320

Observation.—An additional sum of $40 is allowed principals in charge of a school of three or four classes, and of $80 for a school of more than four classes. Communes may and often do supplement these salaries. Moreover, every commune must provide its teachers with free residence or with a money indemnity for the same at fixed rates.

It will be seen that the increase of the proportion of teachers in the third, second, and first classes increases the advantages that the service offers, and at the same time calls for larger appropriations from the State, which pays the salaries.

The principle of a fixed proportion of teachers in each class met with decided opposition in the Chamber of Deputies, and the abolition of these "percentages" in the classification of the teachers of the superior primary (high) schools and in the primary normal schools is regarded as an important triumph.

The salaries of directors and directresses of the two classes of schools remain unchanged. They are as follows:

	Superior primary schools.	Normal schools.	
	Men and women.	Men.	Women.
Fifth class	$360	$700	$600
Fourth class	400	800	700
Third class	450	900	800
Second class	500	1,000	900
First class	560	1,100	1,000

The salaries of assistant teachers in the superior primary schools and of professors in the normal schools are fixed at the following rates:

	Superior primary (assistant teachers).	Normal schools (professors).	
	Men and women.	Men.	Women.
Fifth class	*a* $240	*a* $500	$440
Fourth class	*a* 280	*a* 540	480
Third class	320	*a* 580	520
Second class	380	620	560
First class	*a* 440	680	600

a Increase of $20 over the former salaries.

The State is responsible only for the legal salary of the primary teachers (elementary and superior), and as a rule these are increased by the communes. Thus in Paris the directors of the higher primaries receive as a minimum salary $1,400; maximum, $1,800; full professors from $760 to $1,000.

Scope and progress of superior primary schools.—Superior primary (high) schools are nonclassical high schools which carry the instruction of pupils for two, three, or four years beyond the elementary primaries. They were authorized by Guizot's law of 1833, which also prescribed a programme comprising an extension of the subjects of the lower primaries, with the addition of linear geometry with its useful applications, surveying, elements of the physical sciences, and natural history, with their practical applications. It was further provided that the courses should be specially developed in subjects required by local conditions. The establishment of schools of this grade was made obligatory for communes of more than 6,000 inhabitants. The execution of the law was long delayed by political vicissitudes, and, outside of a few cities which established high schools of the general character indicated without aid from the State, they had no existence until a comparatively recent date. The municipal high schools soon became noted for the excellence of their scientific courses and the artistic and technical skill manifested by their graduates.

In 1878 the General Government indicated its purpose of fostering higher primary schools by a credit of $22,000 to aid communes in their establishment. This appropriation has been augmented year by year, and has proved a great stimulus to local effort.

Peculiar complications arose from the endeavor to class in the same category schools for general instruction and a class of schools industrial or commercial in their character (écoles professionelles) that had been established in a few cities. The development of both classes of schools was retarded until the school law of 1886 prescribed explicitly the scope, studies, and general management of all schools classed as primary.

It soon became evident that high schools with a purely literary curriculum were likely to crowd out those having a technical character, and as this was regarded as a national misfortune measures were taken to increase the provision of the latter class. Accordingly, in 1892 a department of technical instruction was created in the ministry of commerce and industry, and appropriations covering salaries and many other expenses were offered through this ministry for schools giving instruction in commerce and industry to pupils from the elementary schools. Such schools were also transferred to the jurisdiction of the ministry of commerce and industry, and are known as practical schools of commerce and industry. By this arrangement the minister of education was left free to develop higher primary schools of a more educative character.

The purpose, however, was not to increase the literary influence of higher primaries, and the regulations issued since 1892, especially the official programmes of 1893 and also the actual course which these schools have taken, show a strict adherence to the purpose of making them schools for practical training.

Under the regulations of 1893 every higher primary school may have, in addition to its general course, special sections—industrial, commercial, or agricultural. Schools in which these technical departments are distinctly developed come under the direction of the minister of commerce and industry with respect to the same, but as regards teachers and general programmes remain under the minister of public instruction. The various measures indicate the double purpose of fostering manual skill and technical knowledge among the more promising youth of the laboring classes and at the same time extending the scope of their general education.

The initial stage of the higher primary school is often an advanced course (cours complémentaire) annexed to the lower primary and under the same director. These higher primary schools are supported by the combined efforts of the State and the communes. The State assumes the legal salaries of the regular staff, which amounts to about five-sevenths of the total salaries required to maintain the full complement of teachers. The municipality (commune) must pay the

salaries of teachers in charge of the workshop and also of the persons employed as technical and industrial teachers.

The expense for buildings, furniture, apparatus, etc., must also be met by the commune.

The State assists in bringing the provision within the reach of poor but promising youth by a system of scholarships. These are of three classes:

(*a*) "D'internat," to cover or partially cover the expenses of pupils in boarding schools, not to exceed $100 per annum.

(*b*) "Familiales," to pay for boarding out the scholar in a private family when his home is at a long distance from the school and the latter has no boarding house; value, $100.

(*c*) "D'entretien," to pay the parents for the scholar's food, clothes, traveling expenses, etc., and to help toward making good the sacrifice of his wages while he is kept at school (varying from $20 to $80).

Candidates must not be less than 12 or more than 15 years of age. The scholarships are tenable for three years, with possible extension to a fourth year.

These scholarships are secured by strict competitive examination and only by successful candidates who can prove that they would be unable without the assistance to continue their studies. The number of State scholarships awarded in 1892 was: To boys, 674; to girls, 436, or a total of 1,110. The departments and communes also provide scholarships.

Under the admission requirements prescribed by the minister for all pupils, no child can enter the higher primaries unless he has obtained the "certificate of primary instruction" and has passed a year in the highest standards of the elementary schools, or if educated privately can prove equivalent attainments.

The recent increase in the number of these establishments is indicated by the following statistics:

In 1878 they numbered only 40. In 1887 there were 255, besides 431 complementary courses. At this date 47 private schools of the same grade were reported. The total enrollment, public and private schools, was 38,441. In 1892 the situation was as follows:

France and Algiers.

	Number of schools.			Enrollment.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Public schools:						
Two years' course	71	30	101	20,461	7,415	27,876
Three or more years	133	47	180			
Private schools	10	11	21	2,395	1,360	3,755
Complementary courses:						
Public	351	131	482	9,950	4,018	13,968
Private	151	380	531			
Grand total	716	599	1,315	32,806	12,793	45,599

The increase in enrollment in five years, it will be seen, was 7,158 pupils.

Among the public schools are included 47 which are essentially technical, and as such under the joint control of the two ministers, as already specified.

The following additional particulars with respect to this feature of the primary-school system of France are from a very exhaustive report on the subject by Mr. R. L. Morant, assistant director of the recently created department of special inquiries and reports in the English department.[1]

Organization.—One very important point should here be noted; both the "cours complémentaires" and the higher primary schools are, in intention, "écoles régionales;" that is to say, though their creation and maintenance is decided upon and paid for by one commune or town, most of them serve the needs, not only of the town itself, but of all the surrounding districts. Many of them draw pupils from a radius of several leagues, and, though the town itself has borne all the expense of establishing and maintaing the schools, no restrictions are as a rule placed upon the district from which scholars are admitted.

As a result of being "écoles régionales," a large number both of the higher primary schools and of the "cours complémentaires" have boarding houses. These are built by the town at the same time as the rest of the school.[2]

Sometimes they are managed by the town under a salaried "économe" or burser and bring in actual profits to the town budget; but in the vast majority of cases, in the provinces at least, they are left to the charge (and profit) of the director of the school. Half the boys' higher primary schools and two-thirds of those for girls have "internats," i. e., are at least partly boarding schools. This is the case also with half the boys' "cours complémentaires" and nearly one-third of those for girls. There is thus in France practically a widespread system of municipal boarding schools, with the staff supplied at the expense of the State.

The fees for the boarding houses vary from $80 to $150 per annum, the greater number ranging about $125. For the externes or day boys there is also in most schools a system of "études surveillées;" that is to say, pupils may stay at the school beyond the fixed school hours (usually 8 a. m. to 11 a. m., and 1 p. m. to 4 p. m.), under the supervision of the school staff, from 5 to 7 p. m. A charge is made for this in most schools, but not in all, amounting to $10 or $15 a year. In Paris great discussion has arisen upon this point, the progressive members on the council insisting that these charges are contrary to the spirit of the free-education act, and tend to place hindrances in the way of the spread of higher primary instruc-

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As regards the standard of admission to the school, the central authority has attempted to raise the general level by various means, and to confine the admission more strictly to the élitê of the elementary schools, by requiring that no pupil be admitted unless, besides holding the elementary certificate, he has passed a year in the highest standard of the elementary school. In many places there is also an entrance examination, the standard of which is practically decided upon by the local authority, and sometimes considerably raises the standard of the school. And in a few of the largest towns, where the number of candidates is greater than the number of vacancies, this examination comes to be a competitive examination. In Paris there is one simultaneous public examination for all the higher primary schools. The successful candidates, i. e., those who pass a certain standard of marks, are ranged in order of merit, and are then called upon (in this order) to choose the school to which they prefer to go, according to the number of vacancies that are available in each. There is also an examination at the end of each quarter, of which the results are sent to the parents. These examinations are a great stimulus to hard work, and assist also in pointing out the pupils who would be unable to profit by a continued stay at the school. These are invariably "advised" to leave. It is very generally understood, and is carried into practice, that one of the most important duties of the director is to advise parents for and against the continuance of the children's attendance at the school, as also in the matter of choosing the particular section (commercial, industrial, etc.) which he shall enter. The director's opinion is invariably (and, indeed, statutorily) decisive on the former point, besides being very generally paramount as to the latter.

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Mention must also be made of the important part played in the actual management of each school by its "comité de patronage." The composition of each committee of managers is fixed by the education department on the nomination of its local representative. The director or directress of the school is an ex officio member, as also is the primary inspector of the district and the chief inspector of the province. In the case of girls' schools there must be a certain number of ladies on the committee. The committee nominates its own president and secretary. It

meets at least twice in each year, at the summons of the president, and in special cases when convened by the president or by the provincial inspector. At its ordinary meetings it nominates a subcommittee to visit the school at least once a month and report to the committee at the next meeting. The committee is intrusted with the general supervision of the schools and of all that pertains to its efficiency and the interests of the pupils. It takes the latter under its patronage and endeavors to settle them in suitable occupations at the end of their school course. The pupils holding State scholarships are especially under the care of the committee.[1] It further deals with all matters of school requisites and furniture and decides on the measures to be taken to adapt the special instruction to the local requirements, industries, manufactures, agricultural or other occupations. For this purpose all prominent business men in the locality are nominated on these committees.

Curriculum.—The first year's course is the same for all pupils who enter the school, no specialization being permitted till the commencement of the second year. It is then that the student decides, generally under the advice of the director, the particular section in which he will pursue his course. The particular characteristics of each of the sections (general, commercial, industrial, and agricultural) appear in the number of hours allotted to the different subjects in each section respectively. There are six subjects, however, which do not vary at all, being considered to represent the basis of all instruction, and to be, therefore, necessary to every section alike. Thus morals, handwriting, history, civic instruction, gymnastics, and singing are taught one hour a week each, both to boys and girls, in all three years and in all the sections, and boys have two hours and girls one hour for physics and chemistry in all three years in all sections. Elementary notions of common law and political economy are taught one hour a week in the third year of each section both to boys and girls.

The other subjects of instruction vary considerably in the different sections.

Thus, for modern languages, the general section has three hours a week in all three years both for girls and boys, while in the commercial section this is raised to four hours for both and in the industrial section it disappears entirely for boys, being replaced by additional mathematics, science, and manual work. The girls' industrial section, however, retains three hours a week for modern languages and does not increase the mathematics.

Similarly, drawing and modeling, both for boys and girls, is given four and a half hours a week in the industrial section, three hours in the general section, and only one and a half in the commercial section. Both the commercial and industrial sections make up for their increase of special subjects by reducing their French language and literature.

Each section, has of course, its own specialties. The chief characteristic of the general section is the amount of time given to French language and literature—from three to five hours a week for boys and girls alike. It is from this section that the normal colleges are largely recruited, and "general culture" is considered its main purpose.

The industrial section is naturally characterized by more mathematics and technical drawing, and also by its manual work, "travaux manuels," which take six hours a week, as contrasted with two hours in the commercial section.

The characteristics of the commercial section are, as would be expected, bookkeeping and languages, the former being represented by three hours a week, as compared with one hour in the other sections, and the latter by four hours a week. There is also an additional hour for commercial geography.

The agricultural section, in its turn, has no modern languages, very little draw-

[1] See Elementary Education in France. Simpkin, Marshall & Co., London, 1891, page 85.

ing, and is stronger in the natural sciences and in manual occupations bearing upon soil culture. It is of more recent foundation than the others, and is destined to play a great part in the technical education of the French agriculturist, especially while true "technical" classes in agriculture are still so rare. * * *

For girls the programme of subjects, as regards the detailed curriculum, differs but little from that of the boys. They are given one hour a week in the third year for domestic economy, and the practical side of this subject forms an important part of their "travaux manuels." In the industrial, commercial, and agricultural sections the curriculum for girls is purposely left to be decided according to the needs of each locality. Thus the departmental instructions say: "It will be very necessary to take local needs into consideration for the determination of this supplementary programme and for fixing the extra hours of teaching, so that the entry of pupils into industrial or commercial schools of the district may be made as easy as possible."

But perhaps the most interesting, and certainly the most controversial, question in the curriculum of the higher primary schools is that of the "travaux manuels." There is no doubt that in the intention of the education department the higher primary schools are not to teach, or even to prepare for, any one particular trade. Thus M. Brunel, director of primary instruction for the northern departments, says: "The general character of the teaching which obtains in higher primary schools applies equally in the matter of the manual work, in spite of the varied occupations dealt with. The object of the manual work is, first, to educate the eye and hand. In applying this education there is a gradual tendency toward a more special object. But the special sections do not prepare either artisans, or commercial clerks, or agriculturists, but find out and develop in each student the aptitude to become some one of these. They give the students an inclination, so to speak. They put them at the point of entrance into the calling in which they will have to pass their lives, having furnished them with a better provision for life's journey."

When the "travaux manuels" or any other part of the school course give instruction in the definite practice of any particular industry, the school ought, according to the statutes, to be classed as an "école pratique d'industrie" and placed under the minister of technical instruction, and similarly also if it teaches the practice of any special commercial business.

So that it is in the programme of the "travaux manuels" that the general character of the instruction given in higher primary schools (properly so called) is perhaps most apparent. In carrying out the programme considerable variety of application is possible, and, in fact, exists; but there are a certain number of recognized models, both in woodwork and ironwork, which are practically in universal use and serve sufficiently to demonstrate the general course of the study adopted. Moreover, the fact that every section alike—general, commercial, and industrial—is put through the same course of "travaux manuels" conclusively shows that no specialization or trade apprenticeship is intended or attempted; and though the industrial section has six hours a week for travaux manuels, and the commercial section only two, and the general section four, the same curriculum is required in each, the special directions for the special sections being simply as follows: "For the commercial section the programme is to be confined to the most usual and elementary exercises. For the industrial and agricultural sections the programme is to be the same as in the general section, but covering rather more ground."

By article 39 of the decree of December, 1893 (the latest regulations for the organization of these schools), every higher primary school and every "cours complémentaire" must have a workshop, and every pupil is put through the wood course as well as the iron course; and the object always to be held in view is to develop skillfulness of hand and eye and general acquaintance with the use of

tools and with the properties of wood and iron in every child before leaving the school, whatever his vocation in life may be. There is to be no attempt to simulate a genuine apprenticeship.

The drawing and modeling courses are in general the same for each section. The industrial section only adds working models of simple machinery made from sketches and scale drawings, and in the commercial and agricultural sections some additional scale drawing is given, so that in this subject, too, the student is not intended to specialize. Thus M. Le Blanc says: "The 'école primaire supérieure,' and even the 'école professionnelle,' does not prepare draftsmen. Industry provides herself with these by other means. It educates the prospective workingman so that he shall know both how to read and how to execute drawings of the kind generally used in workshops, but it does not turn out skilled draftsmen such as are produced in architects' studios."

At the same time exceptions may be made for local requirements. Thus M. Brunel says: "The elasticity of the organization of higher primary education leaves room for innovations necessitated by local needs. Thus in one of our 'écoles supérieures' for girls in the north we inaugurated a course of industrial drawing, intended to prepare artists whose talent would enable them to find assured employment in the manufacture of textile fabrics."

It should be added that there is an important note in the official programme of the "travaux manuels" which requires every exercise to be done after a sketch and scale drawing, a point which is held of great importance in fixing the educative value of all woodwork training as apart from mere carpenter's dexterity.

Mention must also be made of the excellent foreign-travel scholarships—"bourses de séjour à l'étranger." These date from 1883, and owe their origin, like so much of the best parts of French primary education, to M. Buisson. The first candidates were sent to Switzerland on an allowance of $20 a month, and were chiefly intended to enter the teaching profession on their return to France. The results achieved were so satisfactory that the system was rapidly extended. Various changes have occurred in the arrangements from time to time, and the whole history of the movement is well worthy of study. This memorandum will, however, deal only with the present arrangements as applicable to students of the higher primary schools.

In these schools the traveling scholarships are given upon a public competitive examination. The candidates must be between 16 and 19 years of age, and must prove that their parents are unable to send them abroad at their own expense. The scholarships set apart for pupils of higher primary schools are given solely to those who intend to follow a commercial or industrial career, the "general" students (most of whom enter the teaching profession) being sufficiently provided for by the traveling scholarships set apart for members of the staff of normal colleges. The scholarship holders enter as students in commercial schools or general schools in other countries to which they are sent, and sometimes as apprentices or clerks, without pay, in business houses. They are obliged to write monthly theses in the language of the country where they are residing. These are examined by the "comité de patronage," who are responsible in France for the general arrangements of the scheme and for placing the scholars.[1] The scholarships are usually tenable for a year, with possibility of extension. They vary in amount for the different countries where they are held, those in England being much the highest. There are at present three in Germany (Bremen, Hamburg, and Munich) and nine in England (Clifton, Manchester, Birmingham, Exeter, London, Newcastle, and Liverpool). The experiment has been a great success. Thus M. Armagnac says: "If we glance through the correspondence of the scholarship holders from the

[1] Some of the reports written by normal-college scholarship holders have been very valuable, and have been published in the Revue Pédagogique.

écoles primaires supérieures, we find a sentiment which is expressed nearly everywhere under an almost identical form: 'I am treated like a child of the house;' 'I am here in the position of a son;' 'It seems just as if I were one of the family.' And everywhere the intellectual and moral effects are on a par with the material comforts with which the scholar is surrounded. He is encouraged, upheld, and counseled. While he is allowed a great deal of liberty, the company he keeps is watched. He is put into communication with good comrades and respectable families. In fact, in every respect he is treated as a good father would treat him. These are services which can not be forgotten, and for which their authors can not be sufficiently thanked. And while learning the language of the country which receives them the scholars learn at the same time their manners and customs."[1] "I am surprised at the earnestness of your young men," writes the head of an English training college to a member of the committee, and a few days later one of these young men wrote in his turn: "I imagined the English to be the coldest natured people in the world. They seem so at first, but how pleasant they are when the ice is broken. I am loaded with kind attentions and surrounded with friends."

It is intended in the future to send scholars also to Spain, Italy, the Netherlands, and Russia. Already the municipalities have followed the example of the State, and many now set apart municipal funds every year for these traveling scholarships. In 1889 there were as many as 67 pupils of higher primary schools who had been sent to England and Germany by these means.

Social class of the students.—Perhaps the next point of importance in gauging the work of the higher primary school system in France is to discover how far the schools are frequented by the class of children for whom they were intended. The answer to this question must vary to a certain extent with the locality. There are instances where the "well-to-do" classes have made considerable use of the admirable instruction provided in the higher primary schools, but it seldom happens that they are numerous enough to keep out the most intelligent of those who in a pecuniary sense need it more; for wherever there is an insufficiency of places it is open competition that decides admission, so that the cleverer pupils always get in first; and the cleverer pupils of the elementary school have every chance of success, since the subjects and methods of the examination are strictly on the lines of the elementary school upper standard and certificate work.

Moreover, the fact of "gratuité" has an immensely potent social influence in France. By the act of 1881 all "primary instruction" was made free, and by the act of 1886 higher primary schools and apprenticeship schools were specially named as being parts of primary instruction; hence fees may not be charged for the instruction given in them. And in France there is still sufficient "amour propre" of a peculiar kind to prevent any large use of free schools by any social class higher than the "petit bourgeois"—firstly, from a dread of "promiscuité" (i. e., the mixed character of the children who will be found there), and, secondly, from a feeling of social pride, which hesitates to make use of free schools provided out of public funds.

As a general rule, it may be safely said that in the larger towns the higher primary schools are frequented solely by children who enter them direct from the elementary schools, for there is sufficient provision both for preparatory and for higher education in the lycées and in private schools for those who dislike the "promiscuité" of the free higher primary school. But in the provincial districts, where the higher primary school is sometimes the only available means that exists for any efficient higher education for many miles around, and especially where a well-managed "internat" removes the difficulty of distance, a higher social class have

[1] M. Bréal says: "Ils apprennent la Suisse et l'Angleterre, et ils font connaître la France."

learned to avail themselves of the excellent instruction which is there provided without cost, so far as the actual teaching is concerned.

Movement for adult education.—The higher primary schools do not reach the great mass of children whose education terminates as soon as the obligatory course of elementary instruction is completed. The movement for adult education, by means of Sunday and evening classes, lectures, etc., is intended to save such from moral and intellectural degeneracy.

Since the publication of the Commissioner's report for 1894–95,[1] which contained the synopsis of a special report on this movement, a second report has appeared. This shows a continuance of the enthusiasm and of the efforts, public and private, by which the movement is supported.

The creation of adult classes at local expense had been authorized as early as 1850, and State appropriations allowed for them from 1867. Owing to various causes, chiefly the complete provision of elementary schools, these classes had declined, but resting as they did upon a legal basis, their revival seemed to offer the best means of carrying on the work of adult instruction. This provision of systematic instruction is supplemented in the present movement by populuar lectures, profusely illustrated by magic-lantern views, by public readings from standard works, and by the use of public libraries. In his second special report on the movement M. Petit sums up the results achieved in 1896–97 as follows: 24,578 courses of instruction for adults and adolescents in public evening and Sunday classes, 5,000 courses offered by societies, boards of trade, etc., 97,313 lectures, 110 school societies of mutual aid formed, 1,575 associations of former pupils constituted, 648 school "patronages" (societies for the moral and industrial care of youth) formed, 1,200 societies of popular instruction in full operation, 33,000 teachers engaged in the work, and 417,421 youths in regular attendance upon the instruction. Many and ingenious efforts are used to attract the pupils in the first instance. Handbills are displayed; letters sent; visits are made by the teachers; in fact, a regular crusade is conducted. The young people are brought together in a preliminary session. Eloquence and arguments are employed to excite their interest. Once secured, however, the pupils are retained by the importance of the work and the attractive manner in which it is carried on.

It is of interest to note the character of the instruction thus imparted. Here the experience of the older societies is suggestive. The constant increase in the number of their pupils shows the wisdom of combining general culture with industrial or technical training. These societies even go so far as to teach special industries.

The same course is pursued in the classes maintained by chambers of commerce and boards of trade, even in the smaller municipalities. Following these precedents, the endeavor is made to give the public

[1] Vol. 1, pp. 298–305

classes for adults something of the same practical character, and thus they are rooted, as it were, in the life of the community.

The contrast between the present programmes and those formerly offered in the adult classes is indeed striking. They are no longer limited to the three R's or to a mechanical drill in the subjects of the elementary school. Dictation is employed as a spelling exercise, but the matter is selected for its educational value. Short compositions are required, but upon subjects drawn from the daily life. Short lessons are given in a conversational manner on temperance, thrift, civil obligations, business correspondence, etc. Arithmetical problems are related to the local industries. For exercises of this kind no text-books are at hand. They are a perpetual drain upon the ingenuity and intelligence of the teacher. Often the pupils are consulted as to the subjects in which they desire instruction, and their suggestions prove of the greatest interest.

It is generally the case in cities that there is a section for illiterates. Thus M. Petit reports that at Bordeaux he saw masons, their fingers stiffened by the handling of the mattock, making strenuous efforts to manage the pen. Elsewhere he found soldiers who could neither read nor write, and who had been sent to the classes by their commanding officers.

The tendency to give a practical character to the instruction can be best shown by extracts from answers given to the question, What programme has been generally followed?

"Notions of surveying and study of the general plan of land registry (plan cadastral); practical notions of agriculture and of horticulture" (department of Allier). "In the majority of the schools the effort is made to give a very practical character to the courses. Boys are taught surveying and the general plan of land registration" (Basses-Alpes). "Land registry, agriculture, and common law in the rural communes; drawing and the elements of the sciences applicable to industry in industrial centers" (Ardennes). "Contracts, leases, conduct of sales, common law" (Aube). "(1) Notions of rural law, leases, registries, rentals; (2) business letters, claims; (3) surveying, accounts, bills of exchange; (4) fertilization and improvement of land and of stock; analysis of soils" (Indre et Loire). "To fix and extend the knowledge already acquired and to meet the individual needs of students, as specified in the class register" (Nord). Similar citations could be indefinitely multiplied. There are also many examples of special courses, as at St. Nazaire, in the department of Loire-Inférieure, mechanical courses in naval construction, carpentry; at Brest, in Finistère, courses preparatory for the workshops of a military post, etc.

M. Petit advises that, as additional inducements to attend the classes, prizes should be offered, such as medals, books, even agricultural implements, tools, drawing implements, and in the richer com-

munes savings banks certificates and certificates on the pension fund for the aged. Such awards have already been made in several places, notably at Reims and at Havre, the cost being borne by the municipalities or by private benefactors. The moral effect has proved excellent, and the experience of private societies confirms the value of these expedients.

M. Petit favors also some form of certificate for those who complete regular courses, and believes that in time these would be of great use to their possessors in securing employment, and even special favors, with respect to the obligatory military service. The report states that, although the classes for young women have been less successful than those for young men, they also show increase, rising from 966 in 1894–95 to 1,808 in 1895–96, and to 4,429 in 1896–97. Some departments have formed no classes for women; others very few. The departments which stand highest in this respect are Aisne, with 253 classes, and Seine-et-Oise, 153, in the northeast; Haute-Garonne, 191, in the south; and Vosges, 128, in the east. These seem to have nothing in common but a determined spirit for the initiative. On the contrary, the conditions that interfere with classes for women, which, like those for men, must generally be held in the evening, are the same everyhere—household cares, reluctance to go out in the evening without protection, and weariness after the toil of the day. Mixed classes, it should be said, are little in favor outside of Paris. As to the programmes in the classes for women: In addition to general instruction, which, by universal testimony, makes a deeper impression upon young women than upon young men, large space is given to subjects of special value for women. These include domestic economy and hygiene, sewing, cutting and fitting, and housework. It is urged that instruction in cookery, in nursing, and in the legal status of married women would be of great value, but these subjects can be treated more successfully in weekly reunions on Thursday and Saturday than in evening classes.

The funds for maintaining this work in its various departments are derived from private donations, from fees, municipal appropriations, departmental subventions, and from the State. The private donations do not go to the teachers, but are used in the purchase of material. From this source were derived $11,250 in 1895–96 and $38,000 in 1896–97. Fees contributed in the pay courses were reported from 73 departments in 1895–96 to the amount of $11,250; from 81 departments in 1896–97 to the amount of $12,500.

Although there is a gradual increase in pay courses, there is no prospect that they will supplant the free courses. The classes of the population most in need of moral and industrial guidance are those which can not possibly be reached in this way; hence M. Petit concludes that tuition fees do not promise the solution of the financial problem of adult instruction.

The third and most important source of income for the work under consideration is municipal appropriation. From this source in 1895–96 were derived $230,000; in the following year $264,450. In many departments—those, for example, which include no large cities and in which, as is frequently the case, the communes are burdened with debt—very little is realized from local appropriations. The department of the Seine inscribed in its budget for 1896–97 a total of $94,248, of which $50,248 went directly to the teaching force and $44,000 as subventions to societies engaged in the work. In contrast with this liberality the Basses-Alpes allowed only $62; the Hautes-Alpes, $101; Lozere, $40. In addition to the municipal or communal appropriations the departmental councils (conseils généreux) also make grants for the work, which tend somewhat to equalize the resources of the different communes within their respective limits. The amount from this source in 1896–97 was $8,800.

The contributions of the State for the work of adult instruction are made directly to the teachers, who devote themselves to it, and consist of payment in time, decorations, and prizes. The payment in time is made either by prolonging the vacation or reducing the number of hours per day. The latter course is taken only in exceptional cases.

The honors most coveted are the academic palms and ribbons, "palmes d'officier d'académie", of which 60 are offered each year; "palmes d'officier de l'instruction publique," 20 each year. M. Petit urges that these numbers be increased.

THE REFORM OF THE BACCALAUREATE.

[Citations from articles by M. Boutmy; Revue Bleue, April 18 and 25, 1896.]

The baccalaureate, a social institution; sources of its strength and tenacity.—The baccalaureate is violently attacked just now by an élite of bold spirits. It has pronounced enemies outside of the university. It has them also—and they are not less ardent—in the universities themselves. Whatever be the number and the authority of those who lead the assault, I do not believe that the moment of capitulation is near. The baccalaureate has on its side the strongest claim and the greatest force in the world—possession and custom. It has become a veritable social institution. It is incorporated in our legislation. Innumerable regulations make mention of it, and to it are attributed rights and privileges. The imagination of the reformer is troubled, and his arms fall in view of the enormous work of tearing down and rebuilding the public acts of which the baccalaureate is an integral part. Our bourgeoisie would be struck with a sort of stupor if suddenly they no longer saw the beacon that guides them and by which they direct their sons. They would groan like animals after a sudden darkening of the heavens; they would complain bitterly from knowing no longer which way to go.

Moreover, either from instinctive feeling or from reason, two classes

of persons usually arrayed against each other are united in support of the baccalaureate—representatives of free education and, at least in part, the theorists, desirous of ever-increasing interference and control on the part of the State. These, after all, are in possession. They do not care to dispossess themselves; there is too much of the unknown in the substitutes which are offered them; they fear to lose by change and think it safer to maintain existing conditions.

Representatives of free education are attached to the baccalaureate for other reasons that may be summed up in one sentence. The suppression of that examination would restore the complete monopoly of the university (i. e., the monopoly of education by the State).

The faculties of medicine and law, the public service, are the goal of bachelors. They absorb almost the total number produced. The baccalaureate suppressed, nothing will prevent these faculties from deciding voluntarily or upon compulsion that they will admit to their examinations, degrees, or employment only the young men furnished with diplomas from a State lycée. Deprived of their principal outlet, free establishments will be deserted and have nothing to do but shut their doors. The baccalaureate is their protector against such acts of intolerance. It procures for them two considerable advantages: first, a dignified jury whose impartiality is above all suspicion; second, a uniform title that serves as a shield between them and authorities whose enmity they might dread. The diploma of a bachelor, granted by the State on the proposal of a jury of the State, is sufficient and answers for all. There is no occasion to go beyond that and ask about anterior preparations. Thus the baccalaureate, an official test, has become the best safeguard of the liberty of secondary education, and for this reason the representatives of free secondary instruction are its most faithful and earnest defenders. If the monopoly of the university had continued, it is nearly certain that the baccalaureate would have disappeared long ago. The establishment of the principle of common right is what has done most to conserve it; the impossibility of renouncing that régime is the best guaranty of the maintenance and perpetuation of an institution decried or discredited among many good people. The baccalaureate is efficiently protected also by the complexity and the divergence of those interests and rights which must be conciliated by any system that should be substituted for it. It is as difficult to dispense with it as to supply its place. Thus projects of reform have remained for many years in the state of aspiration and dreams. Until a very recent date no competent authority has consented to take the risks of adopting any one. * * *

Class distinctions fostered by the baccalaureate.—I here mention an important fact too often passed over by the most determined adversaries of the baccalaureate. That examination is not merely the sanction of secondary studies; it is an institution of much social and political consequence, and the effect which it produces by this relation

greatly surpasses in extent and importance its pedagogical effects. A century ago we made a revolution to abolish castes and their privileges; now we are indifferent to the fact that the baccalaureate is reestablishing what we have overthrown. It divides the nation into two classes; one having "parchments," the other not having them; one having sole entrance into liberal careers, the other excluded and confined to the old plebeian avocations—commerce and industry. This division takes place about the eighteenth year. The separation is clear and positive. One either does or does not belong to the privileged class, and it is the baccalaureate that determines. The distinction is definite and for life. At that age one does not recommence his entire education. The young man who has started on another line, who has passed, for example, through a school of commerce or one of agriculture, rarely will have the heart to return to his point of departure and consume in elementary studies time which he could more usefully and manfully employ. Without such return he is excluded; no equivalent of merit and of title is admitted. Such an organization is in manifest contradiction with two principles well established—one economical and social; the other juridical and political. The first of these principles is that talents of every order should be left as free as possible to change their places and remove to those for which they believe themselves best adapted or where they can render best service. Only for the most grave and peremptory reasons should this free circulation be hindered. The juridical and political principle is that of the equal admissibility of all citizens to positions without other distinctions than those of virtue and ability. No derogation that can not be fully justified should be allowed from that standard of right, I would go so far as to say, of public order. To found in reason and in justice the privilege of some and the exclusion of others there would be needed nothing less than a criterion of perfect justness, having the measure of all that makes up the value of a man; I mean his physical and moral as well as his intellectual attitudes. The baccalaureate should not be accepted as a means of social demarcation, of qualification or disqualification for the high liberal careers, unless its possessors were one and all, in the opinion of the world, the only, or almost the only, men fit for those superior positions. The world holds no such opinion.

I will show in a moment that even from the point of view of learning and culture the baccalaureate is a very imperfect test; but were it perfect, it would still be an unsatisfactory principle of social demarcation, because it does not reach every man, nor even the best men. Indeed, I know not if the fact of belonging to a certain family would not form a criterion less fallible or a test of classification more sure than the baccalaureate; hereditary transmission of quality of body and intellect, fireside education and examples, and noble obligation to an illustrious name would guarantee an average of physical, moral, and

intellectual aptitudes more surely than that average of learning and ability which the best judge can discover in an examination of a few hours.

We have created, without doubt, a privileged class, and, what is more grave, we have no assurance that the privilege of the new "noblesse" will be much better qualified than that of the old and that society, country, state will really be benefited by the change.

The baccalaureate thus conceived is a veritable social evil; it largely increases the number of the unclassed, and it is the cause of the multiplication of positions without absorbing or satisfying the ever increasing crowd of candidates. * * *

Has the baccalaureate in effect the virtue of diminishing the crowd, the prospect of which terrifies the authorities who dispose of places? I believe not. I even suspect the contrary. We have seen that the baccalaureate effects a sharp division of the nation into two classes, analogous to the "populus" and the "plebs" of the Roman Republic. Hence its importance, worthy of the full attention of a statesman. A young man seeks the baccalaureate not so much that he may be prepared for a career which he has in view as that he may obtain admission into the higher class. Once admitted, the idea never comes to the candidate of engaging in any profession not comprised within those to which his degree gives him access. He would blame himself for having taken so much pains to obtain a title from which he gets no profit; he would believe that he had failed if he made no use of his privileges; if he were, so to speak, to retrace his steps to one of those courses open to nonbachelors. On the whole, the baccalaureate tends to obscure in the mind this verity of good common sense that there is no unworthy employment except that which one unworthily pursues, no inferior profession except that in which one fails of the requirements. It implies between careers a division and a hierarchy, in great part artificial, which in most cases would be effaced if the baccalaureate did not exist or were it differently organized.

We see, then, how the baccalaureate serves to augment the mass of candidates for public employment. If for every employment the number of postulants is multiplied, it is because, first of all, that the number of persons provided with general qualifications is multiplied. The number of candidates, without doubt, would be fewer if their ranks were not increased by crowds of young men who have taken the baccalaureate only to advance themselves socially, and who afterwards find themselves bound by a sort of duty to themselves to choose one of those careers to which their degree admits them as a matter of privilege. Nobody more carefully avoids what is below his rank than he who has been recently raised to it. In short, the baccalaureate, serving as a means of social classification, tends to accentuate among careers an order of dignity in great part arbitrary and contestable, and thus to increase the number of aspirants to liberal

careers; in fine, to prevent the diminution of this number and the thinning of its ranks. I am right, therefore, in saying that it multiplies the unclassed (déclassés).

Description of the evil in respect to that which is most grave and characteristic indicates clearly where the remedy is to be sought. If the baccalaureate seems to divide the nation into two classes, it is, in the full sense of that term, a grade—that is to say, a "unique degree." One does or does not pass the stage, and upon this depends his qualification or disqualification. He is wholly one thing or the other. Everyone belongs either to the portion above or that below this single stage; he is reputed the equal or the fellow of all in the one or the other division. Here indeed is caste. One enters by effort and the chance of a day, even of an hour, by a sort of accident like that of birth. Beginning with that, all is said, all is done; classification by examination allows no other difference, no other alternative. * * *

Difficulties in the way of reform.—A first erroneous conception brings on a sequence of others, and all taken together form a circle from which there is no escape. The fact that the bachelor's degree procures marked advancement in the social hierarchy inspires ambition in multitudes of young men who otherwise would not care for it. Naturally, the more the number of candidates increases, the more decreases the average of capacities by which involuntarily the examiners regulate the average of requirements. The standard of examinations tends to become lower itself, and there is danger lest mediocrities pass it in crowds. To stop this surging wave no better means is imagined than to make examinations more difficult, and for this no better means can be found than to make them more varied. Many times and much, since the creation of the baccalaureate, has it been modified. It has been reduced and divided into series. Through all transformations its programme has changed only to be enriched. At all events the list of subjects has not been shortened. At present the classical baccalaureate comprehends thirteen tests, extending over ten or twelve subjects, including four languages and three literatures, history, geography, philosophy and history of philosophy, mathematics, physics, chemistry, and natural history. The programme of the "modern" baccalaureate is yet more exacting. The idea seems to be that the dignity and convincing force of examination are to be measured by the diversity of subjects and questionings.

All such expedients have been vain. The standard of examination is not elevated, but the contrary, as, in truth, it was easy to foresee. There is a point on which one need not be deceived; we have obtained what we desired, an examination that apparently stands for large culture and has an air of being difficult. It would be so, indeed, if the tests were serious. But to possess and be able to present at a given moment that array of knowledge would suppose in the candi-

date an acuteness and versatility of intelligence or powers of application and labor infinitely beyond the capacity of even an able youth of 18 years. The requirements are more than enough to embarrass young men of the best endowments and make their success uncertain, even though little is required in the different subjects. It is not desirable to expose such to the risk of failure; that would serve to endanger the recruitment of higher liberal careers; therefore the examinations are really made very simple. Thus, the able are sure to pass, but many young men who, for the honor of the degree, should be eliminated, pass also. Incapacity, ignorance, or extreme laziness alone fail. The body of bachelors continues to be a caste, but it is a caste discredited through the feebleness of a king who bestows the honor too lightly. * * * Examiners are, besides, made distrustful of themselves by a sort of confusion that is produced, particularly in Paris, by the great number of examinations and the requirements in each. After they have seen pass before them hundreds of inanities, they lose or nearly lose the sense of the limit below which they ought not to descend. They know no longer how to judge nor whether they judge well or ill. Like the razor long used in cutting the feathers of the goose, they have lost the edge. It is not astonishing, in this state of doubt and obscurity, that the consciousness of authority fails them and they decide not to put an eliminatory note on the record of examinations. The evil, therefore, is apparently without remedy, unless the baccalaureate should undergo an important modification affecting not only its form, but its nature and spirit. * * *

Furthermore—and this is the second truth that the present system fails to recognize—the intelligent, laborious candidate has no need of so many subjects to balance his bad chances with the good, as they say. Let him have five or six subjects, and if he must take more, let those be according to his own election. This would suffice for him to acquit himself with honor. The existing system appears to have been created in favor of mediocrities. At all events, it operates to their advantage. It is for their sake that studies are multiplied, because, having nothing to expect save by hazard, they increase their chances at every additional throw of the dice. * * *

The form of the diploma.—The form of the diploma is an additional cause of dissatisfaction. The parchment bestowed by the minister carries no other mention except that the candidate has satisfied the requirements at examination. All other information is omitted. The 6,000 bachelors who go out every year from our faculties of letters bear the same title, and they can call and believe themselves equal to one another. That nominal equality is most contrary to reality and verity. It is surprising that the State should make itself the ratifier and consent to admit evidence so empty and so false. In its context, as it is at present, the diploma shows only that a mean has

been attained; it indicates neither the elements of which that mean is composed, nor how it has been passed. Take one example only: A candidate in the first part of the classical baccalaureate, on condition of obtaining a mark not even above 15 in other studies, can be absolutely nothing in Greek, history and geography, mathematics, and physics, or know next to nothing of any living language. The diploma leaves the public in entire uncertainty on all those important points. I am mistaken; for since no note, no branch of studies, is inserted in the diploma, the public, as it were, is invited to refer to the programme of examination, and is led to suppose that all of the courses included within that programme have been studied and mastered by the bachelor. Nothing could be more easy than to speak the truth concerning him. It is among the files of examination papers. It is hidden therein with care, and it is with deliberate purpose that one is denied precise and significant information that would be of service. The differences between one bachelor and another as to scope and character of acquirements may be enormous; not less enormous, frequently, is the range of difference resulting from the indulgence or severity of juries at Paris and in the provinces, all of which disappears under the deceptive, absurd commonplace of a uniform diploma. To this the State is resigned and is encouraged to be at once dupe and deceiver.

The foregoing considerations place us in the presence of a perfectly clear alternative. Either the State should refrain from interference and leave to every one the charge of verifying capacities, or else it ought so to provide that the title bestowed by it be of signification strictly exact and minutely precise. The best way to acquit itself of its responsibility would be before all to attest to ascertained facts—that is to say, indicate explicitly the subjects really known by each bachelor. That condition would be complied with if it were the rule to include in the diploma the subjects on which the candidate has given satisfactory answers, and those subjects only. An examiner who easily suffers himself to raise the mark of a candidate so as to allow him to pass would hesitate to do this if such indulgence should have as a consequence certification upon the diploma bestowed that the bachelor had mastered a subject of which he was ignorant. The more of seriousness in examinations and sincerity in notation the more the convincing value of the diploma. There are two considerable gains, and enough to make the qualified baccalaureate which we propose of greater signification and merit than that now in existence. Optional studies mentioned in the diploma would add further indication. They would furnish a more precise and individual characterization of the intellectual tastes of each candidate. As to the marks "good" and "very good," they would serve to distinguish and make clear among the multitude of bachelors those who are leaders—a number not very numerous, but constituting a veritable élite. Effective

division into two categories, if it were made, would have this result. It would not separate bachelors from nonbachelors, but capable bachelors from the ordinary and mediocre. It would distinguish from the mass not all that pass, but only those who pass well. For the persons, the faculties, corporations, and administrations that have to pronounce upon the admission of bachelors to certain employments, studies, and examinations, the baccalaureate would cease to be a vain, commonplace, and well-nigh insignificant recommendation upon which no reliance can be placed. At present it is nothing else. It would become a means of information, a sort of "état descriptif," which might be made as explicit, as exact, and as complete as possible. It would give information to the proper authorities as to the general competency, qualification actually acquired, direction of intellectual tastes and vocations, and would thus facilitate a more judicious distribution and adaptation of candidates for different careers.

The effect of the diploma upon the studies.—I promised myself not to touch upon the direct effect of the baccalaureate on studies, but without contradicting my purpose I may consider the action at a distance that the prospect of examination exercises on the formation not only of the intelligence, aptitudes, and tastes of the students, but of his character—by which word I mean constitution of will, habitudes that serve as its point of support, springs from which it receives impulse. Of the two, character is assuredly the most important, for if it is energetic and its aims are elevated it furnishes to a man the force and the tenacity necessary to subsequent completion of insufficient education, and in case of need it alone will create for him beautiful ideals of a useful and honorable life. To make clear that capital question, one must consider what constitutes the moral worth of a man. That worth results from and depends upon the habit, slowly and gradually contracted, of looking at life, its surface and its depths, and regarding it down to its close as a series of obstacles to be overcome, of duties to be assumed and performed. That habit can not be formed unless at the age when he was capable of understanding them a man has had a prospect, direct, clear, and open, of the greatest, noblest realities in this world, if education, far from interposing any obstacle between them and himself, has not been devoted to bringing them freely and largely into view. Defense of country, its colonial expansion, development of a branch of human science, free exercise of creative intelligence in philosophy and art, active energy in a profession, are all examples of these actualities. The highest aim of all pedagogy is to so dispose everything about a child that he can see these without effort, in a manner direct and more and more distinct. Upon this condition only will it become natural to him, and, as it were, spontaneous, to incorporate himself with those noble ideals, there to mingle and enlarge his own paltry personality, to feel within himself somewhat of their grandeur and follow their conserving law in prefer-

ence to his own self-interests. To keep constantly before the eyes the vast horizons of life, peopled with collective existences greater than one's own, to grow to admire and love them, to accustom oneself if possible to accept as a blessing, to regard as a sovereign goal the sacrifice that one may make of his personal satisfaction—this, in its last analysis, is the substance of all morality.

These "optical" conditions, if I may so call them, of all moral education the baccalaureate suppresses. Between the child and that vast horizon that it is so important to open before him it raises a barrier that intercepts the view, a low door and an archway through which he must pass for a price before meeting the divergent routes of manful activity. Instead of disentangling him entirely and moving him unconsciously by the life whose contemplation makes a young man a valiant soul, and by those abstracting, distant prospects which excite and exalt his imagination, and those grand creations of reason—country, sciences, arts, dignity of manhood, duty of a citizen, professional honor—sublime figures, veiled only by a distance that the course of years gradually diminishes—his attention is claimed, lowered, and closely fixed upon an object purely arbitrary and artificial, which responds to nothing in life—an obstacle, a sort of steeplechase, or, as I have said, a tollgate or a turnstile—and upon compulsion he spends his time in collecting and getting ready his money. Then he loses all chance that he had of perceiving great impersonal objects, of interesting himself, of attaching himself to them, to make them enter into the perspectives of his future. Of commerce he receives a selfish ideal, which excites within none but egotistic thoughts and constantly occupies his mind with a calculation of chance or with petty recipes and practices of a nature to achieve success. In that order of ideas examinations and competitions for entrance into different careers, however narrow and positive they may appear, are not like the baccalaureate, demoralizers; they open at least one way to a certain type of useful life, embracing a number of duties. For those young men destined to a military life—in the Navy, for example—thoughts and dreams of the future are rich enough in idealism to satisfy the most exacting moralist. In the baccalaureate the ideal and the real fail simultaneously; everything is arbitrary, factitious, commonplace, transient, without any connection with positive, substantial ideas that the young may form of the life awaiting them. That which is placed in perspective at the end of their studies is less an end than a barrier to be overleaped or to be turned by force or address, and this end, unceasingly recalled by the nervous anxiety of parents, is made yet more mischievous by their commentaries. * * *

It is vain to say that most young men do not look so far before them; it is at least necessary to afford them the opportunity. They should get a glimpse of, sound, and divine the great realities which every

year brings near to them. That alone would be an inestimable blessing, and more than abundantly compensate for the sacrifice of an artificial and injurious stimulant. The direct action of the baccalaureate on the moral and intellectual future of a youth appears not less harmful from another view. If there is one incontestable truth, it is that the benefit of secondary education is not measured by the acquirements which a youth may prove himself possessed of when he leaves college, but by all the acquirements which that instruction has put him in the condition and disposition to make in after life. The total result at 18 years, after eight or ten years at school, is necessarily inconsiderable, unstable, soon fading, and, one may say, of the least value compared with the total that may be attained during thirty or forty years correspondent to the period of full maturity. That which is important is the long after work and its results; that which ought to count in the first education is what prepares and disposes a youth to regard the cultivation of his understanding as a work only commenced, and to pursue it as one of the ends constantly proposed for his manful activity. At present, as conceived and organized, the examination tends more or less by its effect upon the imagination, against which it is impossible to guard, to subdue and destroy the natural curiosity of the mind, to dull the edge of stimulants that support and keep it renewed, and, in fine, to diminish the sum of general culture in the majority of individuals. * * *

In conclusion I will limit myself to expressing the profound conviction which conscientious study of the question has served only to strengthen. Secondary studies have no need of the baccalaureate; they have only to gain by being independent, by drawing from themselves alone their force, their attraction, their credit. If the lycées on that account lose a portion of their clientele, that is precisely the portion which it is desirable to see turn from them. They lower the standard of education and the moral tone of youth. The baccalaureate "ordinaire" being estimated at its true worth, would be very modest, and when opening no other door except for one who has passed very well, or who has added certain special matters that he has really mastered, would no longer be the only goal for ambition. It would then seek its natural course; it would turn alike to the higher primary or technical schools; better yet, it would push out into practical life, which, we often forget, is also a school.

THE ASSOCIATION OF GREEK STUDIES.[1]

[Address by Michel Bréal.]

GENTLEMEN: In calling me to the honor of presiding over this great society you have desired to indicate your appreciation of one who has been among its friends from the beginning. There are no longer very many of our confrères who, one day in the year 1867, met at the house of M. Gustave d'Eichthal, in order to lay the foundation of our association. You may not know, perhaps, what was the immediate cause of that meeting. It had been bruited abroad that Greek studies were menaced in our institutions of secondary education. At that news a certain anxiety was felt by the friends of Hellenism. Egger, Brunet de Presle, Beulé, d'Eichthal (I mention only those who have since deceased), resolved to protest. Fortunately, the rumor was ascertained to be false, and it could not have been otherwise with a minister of public instruction like M. Duruy, who, while improvising with keen sagacity new creations that had become indispensable, scrupulously conserved all that was best in the university patrimony. Besides, with the best grace possible, he gave proof of his favorable disposition toward Greek, for he made haste to enter the association wherein his name figures as one of its founders.

No less impulse was given also for another reason. As the cause of Greek studies was, on the whole, the cause of higher education, as it was dear to all cultivated minds, new members were not slow in coming. Men of the world enrolled themselves in great numbers, regarding their adhesion as a duty and an honor. At the end of the first year we were more than four hundred. These figures were doubled at the end of the second year. I know of few associations whose increase has been so rapid. We must conclude that this was a response to the aspirations of the best representatives of our French society.

More than once, since Henri Estienne, has been pointed out the conformity of French with Greek genius in one and another respect. We are conscious of that relationship the more sensibly since the progress of studies has removed the veil of respect, somewhat superstitious, by which epochs of imitation had obscured the image of primitive Greece. Thanks to the researches of history and archæology, thanks also to the increased facilities of travel, we are to-day nearer to that primitive Greece than we have ever been. It may be that students in our colleges are not more familiar with the Greek language than were their predecessors at the period of the Restoration and of Louis Philippe; but this is certain, this which impressed me more than once within these last years, that Hellenic genius has

[1] The Association for the Encouragement of Greek Studies in France held on Thursday, June 3, their annual public session. On that occasion was heard the Second Hymn of Apollo, sung by an artist of great talent, Mlle. de Klin. We reproduce the discourse pronounced by our colleague, M. Michel Bréal, president of the association. (Revue Bleue, June 12, 1897.)

become more generally understood—has grown more popular. At classic matinées in our theaters I hear young girls giving their impressions of a drama of Æschylus or a tragedy of Euripides. Excavations from Delphos, from Delos, attract to the Louvre or to the School of Fine Arts crowds of the elegant and curious. Through the statuettes of Tanagra, Greek sculpture is taking its place in our salons. Even Greek music, as we may perceive in our own time, affords French men and French women artistic emotions of which our ancestors could have had no anticipations. This is not all. We have seen the Greek dance, with movements that have nothing of the academic, become a subject of discussion among professors at the Sorbonne.

One fact summarizes this whole progress. This year, at news of the fêtes which were to celebrate the fiftieth anniversary of the French school at Athens—fêtes that unhappily events have prevented or delayed—such a concourse of visitors was announced that the event began to assume the proportions of a national commemoration. Thus to the Greece that was little admired and revered beyond its own borders has succeeded a Greece better known, with whose life, whose habits, and whose customs we have become familiar, and which we admire more since we know them more intimately.

Since it has pleased you to place in the president's chair a philologist, it will seem to you natural that he should not ignore the Greek language. You will not reproach me, I hope, if I conduct you for a few moments to the past, since the present moment for those who love Greece is not without sadness. We shall return to it presently, if you will, after we have been comforted by a view of all the wonderful things of that favored land, yet destined, I have no doubt, for a long and glorious future.

The Greek language has undergone that sort of change which consists alike in bringing it nearer to ourselves and in stripping it of that which is extraordinary and unique. It no longer seems to us as a miracle; as a sort of divine word created by the genius of Homer and the Oracles. We know that it had, as it were, a cortège of sisters which, after a fashion more or less exact, recalls its traits. We know that many centuries before there was a Hellenic people that language was already in possession of a great portion of its riches; but since science has replaced it in the environment in which it grew, we see more distinctly all that it has added to its primitive foundation, and also all that it has had the good fortune to preserve. We see how it has fructified its part of the heritage, and how it has filled up from its own spirit the forms that otherwise would have remained useless or inanimate.

Let me mention two special felicities which, in my opinion, are attached to the Greek language, and which have made it—

> "Ce langage sonore aux douceurs souveraines,
> Le plus beau qui soit né sur des lèvres humaines."

One of these felicities was to have an epic poetry, a lyric, a theater, historians, orators, long before a grammarian was born. That is a rare felicity; for if you turn your eyes to other languages, you will note that nearly always grammar has been in advance of literature, or, at least, that the earliest writers had before their eyes and in their minds the writings of a former age, words and constructions of another language, that served them for guidance and rule. To the absence of all imitation, all constraint, is to be attributed that ease of movement, that grace which is not conscious of itself, whose charm it is more easy to find than to explain. We may say of it what Sainte-Beuve somewhere said of modern romance, that it had the good fortune to escape the rules of Aristotle, Horace, and Boileau. "It has never been imprisoned, and has known no other discipline than that which is natural; one may say that it grew up in full liberty." The same is true of the Greek language. It astonishes us constantly by its unexpected turns, its liberty of syntax, by phrases which in other languages would seem impossible or inexcusable. But the legislators came too late; its constructions have passed for authority, have received learned names, and been proposed as exemplars.

The second felicity of the Greek language is that, for a long time, no one dialect gained precedence over neighboring dialects and became the official language. On the contrary, with a liberality that has never since been seen, the Greeks of separate states, separate commonwealths, were mutual borrowers; the Athenians employed in the lyrical strophes of their tragedies the Doric dialect; Herodotus, though a native Æolian, wrote his histories in the Ionic. We see how that free exchange enriched its language, multiplied the resources of its poetry, added to the number of those turns which carry with them, as it were, the perfume of the native land. A lesson this for modern peoples to consider and one which I would commend to the Hellenes of to-day, who, while fixing their language, as is proper, would be wrong to exclude what the popular speech of the several divisions may offer that is racy and expressive.

I need not say that these two happy circumstances would have served little purpose without the genius of that wonderful people. Thanks to that genius in times the most ancient, the language is full of expressions which speak to the imagination and which, like the eyes in some portraits, seem to make luminous the objects around them. Solemn or familiar, the Greek language has all tones; the instrument, without effort, is found always worthy of those who have touched its strings to music.

I might add that one can not love the ancient Greek without having some tenderness for the modern, which, whatever some may say of it, has preserved many traits of resemblance to its ancestor. Yet it has not had the same felicity. When it lifted the stone from the tomb and began to take its place among the living, models were not

lacking. It found so many things to guide it that its own originality has been impaired. But it is only just to leave it time to recover itself. It will find its way to lie between those who would force it to remain a simple patois and those who would too soon impose upon it the uniform of our old European tongues. When we recall the time and effort necessary for the formation of French, English, or German, it must necessarily be very unjust to taunt the neo-Hellenic idiom with its first irresolute attempts.

It is characteristic of our association that since the first day of its existence it has united in the same spirit of union and concord admirers of ancient and the most distinguished representatives of modern Greece. Other nations have done as much as France for the advancement of learning, but one will not readily find elsewhere that fraternity which has joined in one purpose the sons of the Hellas of to-day and the disciples of ancient Greece. If you run over the list of our confrères you will notice their names mingled throughout its pages. Only last year we had for president M. Démétrios Bikélas, one of those men who by force of character, patriotism, and dignity of life do honor to the nations to which they belong. In the list of those who have died this year and whose loss we mourn will be found the same commingling.

After noticing a number of distinguished members who had deceased, M. Bréal thus proceeds:

And now how shall I avoid speaking of that which is present in our minds, and which weighs upon our hearts and consciences? It is not for me to recur to the beginnings of a conflict which, without doubt, it would have been possible to prevent, a conflict whose issue in other times could not have turned to the detriment of Greece. To him who compares Europe of 1897 with the Europe of 1827 there is no place for pride nor felicitation at the new orientation imposed by the diplomacy of the great powers. Yet, whatever be the present exigencies, while making proper allowance for circumstances and without pretending to judge the situation, which in some points escapes our examination, we have the right to lift our thoughts higher, to put ourselves at a point of view more elevated, which will be also the point of view of history.

The war which we are witnessing is an episode in the conflict of a century. The lot of the people of Greece, since the earliest times of their history, has been to confront the pressure and menaces of the East. Situate at the extremity of Europe, facing the continent of Asia, that small country—the memory is of yesterday—has been the advanced guard and the savior of civilization. Nothing that we possess, nothing in our associations, nothing that contributes to the dignity and value of our life, nothing of all these would have existed if Greece had not, by an immortal heroism, confronted in bygone times an enemy twenty times superior in numbers. Nor is this all.

It proceeded afterwards to find within itself, not for the pleasure of finding, but for bringing forth, all the acquisitions and treasures of its genius. Can we then complain of Greece if she has recognized her destiny in that behoof, if she has always held herself ready to renew the same combat, and if, as was said long ago by the poet Aristophanes, she has not the habit of counting the numbers of her enemies?

Destiny, for the time, is against her. She is vanquished; she has also the mortification of undergoing a concert of remonstrances. It would have been more generous to have spared her this humiliation. Eye-witnesses professing to be impartial affect to hold an equal balance between the two adversaries. But it is not fitting now to compare the personal virtues of the Ottoman subject with those of the Hellenic citizen—a comparison always delicate, always difficult, and which easily becomes delusive in arbitrarily choosing types. For the present, let us regard the two nations side by side. Then what do we behold? On one side we have a small nation that within seventy years has created a town like Athens, open to all the sciences, all the arts, where one feels himself to be in a complete European capital; on the other hand a vast, somnolent empire, which in four hundred years has produced neither an artist nor a writer, and which never rouses from its lethargy but to appall the world by the cruelties of a former age.

Between these two antagonists the ultimate choice of Europe can not be doubtful. Despite the anguishing trials of the present, the future is for civilization. The close of the nineteenth century will not witness the humiliating spectacle of a return of power conceded to Mussulman despotism in Europe.

But, before we conclude, the friends of Greece may address to her one last word. We do not doubt her, and as we have confidence in her, we say to her that she should be ready with an ample provision of energy, for she must prepare for another struggle, more formidable in one sense than that of yesterday—a peaceful struggle, where the victory will be for the most intelligent, the most laborious, for the one that is most a master of itself. Close neighboring to the Hellenic peninsula are nations young, ambitious, aspiring to the patronage of the great powers. It is here that thoughtful Greeks of to-day should direct their attention. If they wish to keep for themselves the resources with which nature has endowed them, they should not hide them from their rivals. May they make more and more fruitful those gifts of activity and intelligence characteristic of the Hellenic race. It is often that on the morrow of catastrophes come periods of progress and abundant development. We say, therefore, to the patriots of Greece, "Let not your hearts abide in sadness. Have faith in the future. Justice is there." *Πενθεῖν οὐ χρή, νέμεσις γάρ.*

CHAPTER III.

EDUCATION IN DENMARK.[1]

TOPICAL OUTLINE.—Population and administration.—Earlier presentations.—General features of the school system.—Schools of Copenhagen.—Rural schools and those of other cities.—People's high schools and agricultural schools.—Secondary schools (includes statistical presentation of growth of real schools as compared with the classical schools).—The University and special schools.—The teacher: preparation for position; associations and conferences.—Historical data.

AUTHORITIES CONSULTED.—Love og Expeditioner vedkommende Kirke og Skolevæsen.—Statistiske Meddelelser om Skolevæsenet i Danmark. (Udarbejdede i Anledning af det syvende nordiske skolemøde i Stockholm, August, 1895.)—De gældende Retsregler for det höjere Skolevæsen i Danmark, ved A. P. Weis og H. Hage.—Slöjdsagen i Danmark: Aarsberetning, 1886–1895.—Vor Ungdom, 1892–1895.—Deutsche Zeitschrift für ausländisches Unterrichtswesen, Jahrgang I, Heft I–II.—Oesterreichischer Schulbote, Dezember 1894.

INTRODUCTORY STATEMENT.

Constitutional monarchy; area, 14,124 square miles; population, 2,185,335 in 1890; capital, Copenhagen; population (without suburbs), 312,859; minister of ecclesiastical affairs and public instruction, V. de Bardenfleth; chief of the division of education, A. F. Asmussen; chief of the royal archives, A. F. D. Jörgensen; chief of the royal library, Dr. C. W. Brunn; chief of the Museum of Antiquities, C. F. Herbst; director of the Academy of Fine Arts, F. Meddahl.

The liberal constitution, based upon a charter of June 5, 1849, was modified and revised in 1855, 1863, and 1866. The executive power is vested in the King, with eight ministers as aids; acting in conjunction with the King in carrying out the laws is the Rigsdag (the Landsthing og Folkething). Denmark is divided into provinces, varying in size from 221 to 9,597 English square miles; there are 18 counties (Amter), subdivided into 60 districts and numerous school districts—2,399 in 1867; of these, 1,081 in the islands and 1,318 in Jutland. The seven provinces correspond to the church dioceses, and religious affairs are under the superintendence of bishops, although there is toleration of all creeds.

The State religion is Evangelical-Lutheran, and 99 per cent of the population belong to that church, of which the King must be a member. The centers of population, Copenhagen excepted, are the 66 cities (Kjøbstæder). The principal cities are Odense, on the island of Fionia; Helsingfor, in Seeland; Aarhus, Aalborg, Randers, and Horsens in Jutland, and Viborg. In Denmark proper the town population increased from 515,758 in 1880 to 663,121 in 1890, or 28.7 per cent; the rural population increased from 1,453,281 in 1880 to 1,509,084 in 1890, or 3.77 per cent. With a population in 1890 of 2,185,157, the pupils enrolled in city and rural schools numbered 231,940, or about 10 per cent of the population. In 1881 the illiterates to 100 recruits numbered 0.36.

[1] Prepared by Miss Frances Graham French, specialist in the school systems of northern and eastern Europe.

INFORMATION RELATING TO DENMARK IN FORMER REPORTS.

Character of information.	Report of the Commissioner of Education.	
	Year.	Page.
Technical schools	1870	442
Farmers' high schools, courses of study and methods; secondary schools; supplementary institutions.	1871	457, 458
Statistics for 1857 and 1867 tabulated; questions concerning secondary education.	1872	450–452
School law of 1814 as basis of present school law; education compulsory; school funds and subsidies for municipalities; statistics of schools.	1873	CLVII
Statistics of schools in Copenhagen; farmers' high schools	1874	CXXXIV
Obligatory school age, 7 to 14; number of gymnasia; parochial schools.	1875	CXXIX
Brief summary of school laws; school age, 7 to 15; compulsory education; free tuition; expenditures for schools paid by communities or districts; secondary schools authorized by the State.	1876	CCXXXIII, CCXXXIV
Statistics of elementary, secondary, and superior institutions	1877	CLVII
Grundtvig's connection with schools; number of schools; supplementary institutions; reasons for founding the university at Copenhagen.	1878	CLIV
Statistics appertaining to all grades of schools	1879	CLXXXVI
Conditions of education in Iceland, dependency of Denmark; duty of the mother to instruct her children, and of the pastor to supervise such home education.	1880	CXCVI
Length of course in gymnasia and real schools; languages obligatory in such course.	1881	CCXLV
Educational system well organized; illiteracy; university statistics.	1882–83	CCXVI
The polytechnic school and the university	1883–84	CCIII
Statistics of educational periodicals	1886–87	976
Do	1887–88	1010
Population and enrollment; teachers' salaries; sanitary conditions in schools; elementary school statistics.	1888–89	76, 345, 465, 1442–1444
Educational system of Denmark: Historical sketch; the school system; statistics; finance; supervision and administration; training of teachers; courses of study; school methods and organization; supplementary institutions; future possibilities; educational exhibit at Paris Exposition; provision for industrial education; weight of school children; statistics of education from kindergarten to university; notes on education; elementary school statistics.	1889–90	122, 519–548, 551–555, 981, 1202–1223, 1672–1677
Statistics of attendance; teachers and cost of schools; statistics of law schools.	1890–91	369, 454
Danish school museum	1891–92	245
Foundation of common schools; statistics of higher schools and of elementary schools; minister of public instruction and ecclesiastical affairs.	1892–93	1158–1192, 2074–2075

GENERAL FEATURES OF THE SYSTEM.[1]

The schools, an establishment of the State, with a required attendance of all children between 7 and 14 years of age, are divided into elementary grades of two kinds in the larger cities, namely, pay schools (Betalingsskolerne) and free schools (Friskolerne). In the country they include ambulatory schools and people's higher and agricultural schools (Folkehøjskoler og Landbrugsskoler), the last mentioned being a continuation of the common schools (Almueskolevæsenet) of rural districts. Then there is a connecting link—the burgher school in the cities—leading to the secondary grade ("Real" and "lærde" schools). The former prepare for practical life, the classical divisions for the uni-

[1] The school system in detail is presented in the report of the Commissioner of Education for 1889–90, pages 519 to 548. The main facts are here reproduced, with statistics to date of 1893–94.

versity. The normal schools (Seminarier) prepare teachers for desired positions. The special schools include polytechnic, veterinary, agricultural, and navigation schools. There are also schools for the defective classes.

As in the other Scandinavian countries, religious instruction is a main element in the schools and the clergy exercise parochial and general supervision over all educational institutions.

At the head of the school system is the minister of ecclesiastical affairs and public instruction,[1] to whom the bishop of each diocese reports annually concerning educational affairs of this diocese. An inspector-general for the whole Kingdom in charge of music and an inspector for gymnastic training complete the list of higher school officers, who, by means of the reports forwarded to them by local officers, are kept advised of educational affairs throughout the Kingdom.

In each rural commune or parish and in each town the administration of public schools is in the charge of a school commission.[2] Outranking the school commission in each district or subdivision of the county is the school board.[3] The school council (Skoleraad) of each county[4] and the county school board (Amts skoledirektion), which comprises the school boards of the district, have control of the financial side of educational affairs.[5]

In Copenhagen the school board includes the mayor, a member of the aldermanic council, and an ecclesiastical functionary designated by the minister of ecclesiastical affairs and public instruction.

A director, or inspector, who is a consulting member of the school board (composed of three members), is especially charged with all that concerns the administration of the schools. Each of the wards of the capital has a school committee of three members.[6] Each public school has an inspector, who is a teacher. He has fewer hours of recitation than his colleagues and receives higher pay. His special duty is to look after absentees and to notify the parents of such negligence.

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[1] In this ministry there are two sections—the one for supervision of ecclesiastical affairs, elementary and normal schools, blind and deaf-mute instruction; the other for the supervision of secondary and higher schools, libraries, museums, and academies.

[2] Composed of the pastor, as presiding officer, and two members appointed for three years by the communal council.

[3] This includes the sheriff (Amtmand); the district provost, or first ecclesiastical dignitary; and a third member, designated by the county school council. It generally appoints teachers and arranges the programme of studies, although teachers are allowed much freedom of action.

[4] Composed of the members of the county administrative council (Amtsraad) and of several members elected by the towns or cities.

[5] From Love og Expeditioner vedkommenden Kirke og Skolevæsen.

[6] These are a clergyman appointed by the minister of public instruction, a member elected by the communal council, and a third member appointed by the school board.

The law of 1814, upon which the school system is based, makes it obligatory on all parents that children attend school or receive home instruction. Fines or imprisonment are imposed upon parents or guardians for non-enforcement of this law. The State requires each commune to be provided with suitable accommodation for all children of school age, gratuitous instruction being given to those who can not afford to pay tuition fees. The expenditure per inhabitant for elementary instruction averages about $1.54 throughout the Kingdom.

For the maintenance of schools there are various agencies. Finances, as they pertain to educational affairs, are subject to the control of the minister of public instruction. The main support of elementary schools depends upon county or district funds, with governmental subsidies for stated purposes. Normal schools are maintained by State funds. Secondary schools and the university have their own funds, and are independent of the annual amounts voted for the ministerial budget by the Rigsdag. The necessary funds for construction and repairs, heating, purchase of school material, and for teachers' salaries in the elementary schools are voted by the district or communal authorities. The annual increase in teachers' salaries, their pensions and those for the widow and orphan, are paid from a county school fund, which also supports people's high schools, drawing schools, etc. This fund, formed by an annual subsidy from the State and from revenues from taxation and contributions, is divided among the counties, and is under direct control of the county school board and the school council. The former meets annually to determine the required amounts for the ensuing year; the latter sanctions its decisions if favorable thereto.

A statement in tabulated form of the expenditures for different years indicates the total amount in the schools of Copenhagen, in other cities, in county schools, and in parishes during the years 1880 through 1889. The average for a five-year period, expressed in dollars, permits one to observe the increase in every class of expenditure except in extraordinary expenditures for parishes and commercial centers, but this may be explained by the tendency of the population toward centers of civilization, like cities, where there are special objects of study in view.

[Amounts expressed in crowns. The crown is valued at 26.8 cents.]

Year.	Copenhagen.			Other cities (Kjøbstæderne).			
	Ordinary expenditures.	Extraordinary expenditures.	Total.	Salaries.	School buildings, apparatus, etc.	Other expenditures.	Total.
1880	750,918	76,320	827,248	711,626	134,533	41,508	887,674
1881	791,762	206,113	997,875	748,311	152,469	55,028	955,808
1882	838,865	148,626	987,491	759,581	152,438	84,312	996,331
1883	897,702	283,501	1,180,803	771,068	198,540	82,969	1,052,617
1884	950,819	177,646	1,128,465	837,166	281,342	67,687	1,186,145
Average (general)	845,951	178,443	1,024,394	765,537	183,864	66,294	1,015,715
1885	1,066,781	348,988	1,395,769	867,114	147,458	83,260	1,097,829
1886	1,118,889	602,681	1,721,570	881,081	237,413	69,456	1,187,950
1887	1,214,693	130,106	1,344,799	920,453	213,750	84,612	1,218,815
1888	1,318,846	226,837	1,545,683	957,813	240,421	75,640	1,273,874
1889	1,300,994	298,981	1,600,975	1,000,615	299,538	88,190	1,388,343
Average (general)	1,217,239	320,519	1,537,750	925,415	227,716	80,250	1,233,381
Average in dollars for 1880–1884	$236,714	$51,123	$275,138	$206,169	$49,274	$17,768	$272,211
Average in dollars for 1885–1889	326,220	75,699	421,119	266,011	60,827	21,507	329,541

Year.	Parishes, communes (includes commercial centers, Handelspladser).			County school funds, with subsidies from—			
	Ordinary expenditures.	Extraordinary expenditures.	Total.	State.	County.	Cities (Kjøbstæder).	Total.
1880	2,988,290	453,973	3,442,263	279,160	290,676	51,199	621,035
1881	3,160,199	400,768	3,566,967	278,148	307,568	56,630	642,346
1882	3,142,616	464,497	3,607,113	289,175	308,731	60,338	658,244
1883	3,092,643	482,582	3,575,225	305,381	315,345	65,048	685,774
1884	3,227,611	519,123	3,746,734	312,180	337,018	65,488	714,686
Average (general)	3,123,472	464,189	3,587,660	292,808	310,868	59,741	663,417
1885	3,246,027	589,090	3,835,057	320,975	334,174	66,854	721,003
1886	3,117,812	447,368	3,565,180	331,309	338,874	66,716	736,899
1887	3,100,381	383,316	3,483,697	343,663	366,619	60,987	780,249
1888	3,097,532	459,127	3,560,659	358,734	384,803	76,692	830,229
1889	3,350,273	444,530	3,794,803	366,186	398,430	78,034	842,650
Average (general)	3,182,405	463,474	3,645,879	344,173	364,580	71,453	780,206
Average in dollars for 1880–1884	$837,088	$125,402	$961,402	$83,472	$83,311	$15,921	$177,795
Average in dollars for 1885–1889	852,964	124,120	977,095	92,238	97,706	19,159	209,095

SCHOOLS OF COPENHAGEN.[1]

The finely developed school system of Copenhagen forms a general model for all schools of Denmark. The free and pay schools (see table below) of elementary grades controlled by the school board had

[1] The presentation for the schools of Copenhagen and for the whole of Denmark is taken from the "Statistiske Meddelelser om Skolevaesenet i Danmark, Kjøbenhavn, 1895," which was prepared for the seventh meeting of the General Teachers' Association (of Sweden, Denmark, and Norway), held in August, 1895, in Stockholm. This association meets every five years in one of the three capitals. The statistics for Denmark are more complete than at any previous period, and hence are quite fully presented in this essay.

33,000 pupils in the year 1893 (16,778 boys and 16,222 girls); in private schools, 7,276 (boys, 2,499; girls, 4,777). There are separate classes for boys and girls, although in the free schools and in the three lower classes of pay schools the sexes are educated together, but they are again separated in the higher classes. Each class—from 30 to 35 pupils—has its male or female teacher, each school its inspector or inspectress, or vice-inspector or vice-inspectress, whose duty it is to see that the school-board regulations are carried out. In 1893 the programme of study comprised religion, Danish, mental exercises, German, history of Denmark and universal history, geography, natural history and natural sciences, mathematics, reckoning, bookkeeping, writing, drawing, singing, gymnastics, and manual training. A marked increase in pupils in the public schools of Copenhagen is noticeable during the forty years (1850–1890), as compared with private schools (see Table 2). Reckoned in per cent of population there were in the various years:

Year.	Public schools.	Private schools.	Total.	Year.	Public schools.	Private schools.	Total.
	Per cent.	*Per cent.*	*Per cent.*		*Per cent.*	*Per cent.*	*Per cent.*
1850	3.03	5.3	8.33	1880	5.89	4.66	10.55
1860	3.78	4.77	8.55	1890	9.12	2.62	11.74
1870	5.24	5.53	10.77	1893	10.15	2.24	12.39

Thus it will be seen that, as compared with population, there was a gradual diminution of students in private schools and a threefold increase in attendance upon the Copenhagen public schools. The statistics in pay and free schools are here presented:

Year.	I.—Public schools.	Boys.		Girls.		Total.		Pupils to a class.
		Classes.	Students.	Classes.	Students.	Classes.	Students.	
1850	Pay schools	42	1,643	30	1,220	72	2,863	39.8
	Free schools	12	495	13	584	25	1,079	43.2
	Total	54	2,138	43	1,804	97	3,942	40.6
1860	Pay schools	48	1,900	36	1,413	84	3,313	39.4
	Free schools	32	1,326	29	1,217	61	2,543	41.7
	Total	80	3,226	65	2,630	145	5,856	40.4
1870	Pay schools	65	2,570	61	1,930	126	4,500	35.7
	Free schools	63	2,503	62	2,487	125	4,990	39.9
	Total	128	5,073	123	4,417	251	9,490	37.8
1880	Pay schools	99	2,965	90	2,654	189	5,623	29.8
	Free schools	133	4,270	126	3,945	259	8,215	31.7
	Total	232	7,239	216	6,599	448	13,838	30.9
1890	Pay schools	165½	5,040	150½	4,548	316	9,588	30.3
	Free schools	308½	9,680	298½	9,271	607	18,951	31.2
	Total	474	14,720	449	13,819	923	28,539	30.9
1893	Pay schools	172	5,514	160	4,989	332	10,503	31.6
	Free schools	370½	11,264	360½	11,233	731	22,497	30.8
	Total	542½	16,778	520½	16,222	1,063	33,000	31

In order to more thoroughly understand the private-school grouping during the years 1850–1893, the statistics for private schools of Copenhagen of different kinds are tabulated:

Year.	II.—Private schools.	Students.		Total.		Pupils to a class.
		Boys.	Girls.	Classes.	Students.	
1850	Schools supported by their own funds	305	316	26	621	23.9
	Schools having funds, but aided by societies	745	873	67	1,618	24.1
	Schools supported by students' fees	2,228	2,434	335	4,662	13.9
	Total	3,278	3,623	428	6,901	16.1
1860	Schools supported by their own funds	352	341	33	693	21
	Schools having funds, but aided by societies	1,161	897	82	2,058	25.1
	Schools supported by students' fees	1,968	2,667	286	4,635	16.2
	Total	3,481	3,905	401	7,386	18.4
1870	Schools supported by their own funds	513	610	49	1,123	22.9
	Schools having funds, but aided by societies	1,157	932	96	2,089	21.8
	Schools supported by students' fees	3,012	3,701	445	6,803	15.3
	Total	4,682	5,333	590	10,015	17
1880	Schools supported by their own funds	468	573	53	1,041	19.6
	Schools having funds, but aided by societies	585	756	68	1,341	19.7
	Schools supported by students' fees	3,701	4,875	531	8,576	16.2
	Total	4,754	6,204	652	10,958	16.8
1890	Schools supported by their own funds	383	351	38	734	19.3
	Schools having funds, but aided by societies	982	821	97	1,803	18.6
	Schools supported by students' fees	1,467	4,165	366	5,632	15.4
	Total	2,832	5,337	501	8,169	16.3
1893	Schools supported by their own funds	381	360	38	741	19.5
	Schools having funds, but aided by societies	1,114	805	99	1,919	19.4
	Schools supported by students' fees	1,004	3,612	327	4,616	14.1
	Total	2,499	4,777	464	7,276	15.7

The gradual increase in students in these years was followed by an increase in teachers, especially in those who had received normal-school training. In 1860 there was 1 teacher to 47 pupils; in 1893, 1 to 36 students. Women teachers increased from 14 to 504; men teachers from 111 to 425.

General regulations appertaining to teachers are as follows: By law of July 25, 1867, a commission composed of eleven members, appointed by the Government, attends to the examination of persons who desire to obtain a teacher's position. Such persons must present themselves for examination, whether they have received the diploma of a normal school or not. This commission meets annually in Copenhagen and in two other cities of the Kingdom. The teachers are usually appointed to the elementary grades by the school board of the district, according to the suggestion of the communal council and the bishop. The public elementary school-teachers in Copenhagen are reported in the different years according to the examinations which they have passed, and it is interesting to observe the growth of the normal-school idea

by the increase from 21 to 257 of those passing such examination since 1860.

Year.	Theological examination.	Examen artium.	Other scientific examination.	Normal-school examination.	No examination.	Not given.	Total.
1860	40	3	14	21	a33 (14)	.....	111
1870	44	.....	19	34	41 (19)	.....	138
1880	36	.....	18	81	65 (51)	1	201
1890	33	.....	25	215	97 (83)	5	376
1893	40	.....	21	257	104 (95)	3	425

a Drawing, singing, and gymnastic teachers are included in the parentheses.

Given the number of pupils in the years 1860–1893 in the Copenhagen schools, it is interesting to observe the salary given. The largest salary for women teachers is 1,600 crowns ($428); the highest salary for men is 3,900 crowns ($1,045). In the early years the greater proportion of teachers received 1,000 crowns ($268), while in 1893 the amount of $428 was paid to the greater number of both men and women.

MEN TEACHERS.

Year.	Total number of pupils.	Having permanent places (salary in crowns).														Teaching by the hour (timelærer).			Special teachers.			Total.
		3,900.	3,800.	3,500.	3,300.	2,950.	2,600.	2,500.	2,350.	2,225.	1,950.	1,675.	1,600.	1,400.	1,300.	1,000.	80 öre.	70 öre.	60 öre.	Drawing teachers.	Singing teachers.	Gymnastic teachers.	
1860	5,856	...	...	...	...	...	...	...	...	...	...	...	32	....	28	37	...	...	...	...	...	14	111
1870	9,490	...	...	...	...	...	...	...	...	...	...	...	62	....	21	36	...	...	...	...	...	19	138
1880	13,838	1	5	2	1	2	1	38	9	18	1	14	....	24	....	....	....	2	31	9	13	29	200
1890	28,539	...	8	2	2	7	4	30	11	17	19	41	....	47	....	....	2	...	103	17	20	46	376
1893	33,000	...	7	2	6	3	6	32	13	17	37	47	1	47	....	....	1	15	96	20	23	52	425

WOMEN TEACHERS.

Year.	Total number of pupils.	Having permanent places (salary in crowns).					Teachers by the hour (timelærer).		Special teachers.				Total.
		1,600.	1,500.	1,400.	1,300.	1,000.	70 öre.	60 öre.	Drawing teachers.	Singing teachers.	Gymnastic teachers.	Handwork teachers.	
1860	5,856	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	14
1870	9,490	.....	.....	.....	17	36	.....	.....	.....	.....	.....	7	60
1880	13,838	39	23	37	.....	.....	.....	97	.....	.....	.....	8	204
1890	28,539	128	56	66	.....	.....	2	155	.....	.....	.....	9	425
1893	33,000	174	63	62	.....	.....	13	167	1	6	6	12	504

RURAL SCHOOLS AND THOSE OF OTHER CITIES.

The different laws which have governed the schools throughout Denmark are referred to later under historical data, and were cited in the report of the Commissioner for 1889–90, pages 520–522.

The foundation of the common school (Almueskole) was by law of 1814, which gave children between 7 and 14 years of age the right to gratuitous instruction in the common schools.

The gradual growth of the school system for Copenhagen and other cities was referred to in the above-mentioned report, but statistical information for rural districts, as well as for some cities, has been lacking, owing to the fact that the educational authorities had not for years collected such information. From the "Statistiske Meddelelser om Skolevæsenet i Danmark," published in Copenhagen in 1895, the following detailed and comparative statistics are taken. The number of children of school age in rural districts (including commercial centers or trading stations) were:

	1867.	1893.
In Seeland and Bornholm	59,676	72,841
In Funen and Laaland-Falster	37,085	40,027
In Jutland	103,300	130,769
Total	200,761	243,637

In accordance with the attendance or nonattendance in public or private schools, the figures read thus:

	In 1867.			In 1893.		
	Taught in public schools.	Taught in private schools.	No instruction.	Taught in public schools.	Taught in private schools.	No instruction.
In Seeland and Bornholm	53,125	5,098	1,453	60,065	12,603	173
In Funen and Laaland-Falster	35,022	2,056	617	35,743	4,187	97
In Jutland	96,051	6,840	499	118,589	11,870	310
Total	184,198	13,994	2,569	214,397	28,660	580

Thus it is seen that an increase of 16 per cent of the school population was instructed in public schools; in private schools it doubled; the number not under instruction was only about one-fifth as large as in 1867.

The following is the school population in Kjøbstæderne (seaports, market towns, or cities):

	1867.	1893.
Towns on the islands	18,540	29,122
Towns in Jutland	15,096	30,527
Total	33,636	59,649

Of this number those receiving schooling and those receiving no instruction were:

	In 1867.			In 1893.		
	Taught in public schools.	Privately instructed.	Having no instruction.	Taught in public schools.	Privately instructed.	Not instructed.
Towns on the islands *a*	12,773	6,055	Not given..	20,644	8,406	72
Towns in Jutland	10,579	4,354		21,565	8,895	67
Total	23,352	10,409		42,209	17,301	139

a It is of some interest to observe the size and population of the islands, the peninsula of Jutland, etc., in presenting school population, number of pupils under instruction, etc. The following figures are taken from the Statesman's Yearbook for 1897:

Division.	Area (English square miles).	Population, 1890.	Population per square mile.
City of Copenhagen (without suburbs)	7.7	312,859	40,569
Islands in the Baltic	5,024	917,401	183
Peninsula of Jutland	9,473	942,120	99
Faroe Islands (17 inhabited)	514	12,955	25
Total	15,289	2,185,335	143

Here, again, public school instruction predominates, and has about doubled in the years under discussion.

Grouped in accordance with the proportion to 100 of school population, there were either privately instructed or instructed at home:

	1867.	1893.
In rural districts of the islands	7.2	14.8
In rural districts of Jutland	6.6	9
In Kjøbstæderne of the islands	32.7	32.8
In Kjøbstæderne of Jutland	28.8	29.1

The number of public schools in the thirty-six years of 1857–1893 are as follows:

	Public schools.		
	1857.	1867.	1893.
In rural districts of the islands	1,026	1,156	1,397
In rural districts of Jutland	1,494	1,625	2,066
Total	2,520	2,781	3,463

Or a total of 23.4 per cent—for the islands, 20.8 per cent; Jutland, 25.2 per cent.

In Kjøbstæderne, for two different years, there were:

	1867.		1893.	
	Number of schools.	Classes.	Number of schools.	Classes.
In Kjøbstæderne of the islands	74	368	85	619
In Kjøbstæderne of Jutland	39	284	48	705
Total	113	652	133	1,324

In 1893, in rural districts (Landdistrikterne), the following tabulations were made:

	School population.	Taught in public schools.			Taught in private schools.	Taught at home.	Not instructed.
		In districts.	Outside of the districts.	Total.			
In the islands	104,345	87,826	2,646	90,472	10,241	3,367	265
In Jutland	128,435	114,341	2,560	116,901	6,521	4,711	302
Per cent on the islands				86.71	9.81	3.23	0.25
Per cent in Jutland				91.02	5.08	3.67	.23

If this tabulation is continued for Kjøbstæderne, these additional figures are observed for the year 1893:

	School population.	Taught in public schools.			Taught in private schools.	Taught at home.	Not instructed.
		In cities.	In towns.	Total.			
In the islands	37,645	25,583	397	25,980	10,863	725	77
In Jutland	32,861	23,081	172	23,253	9,013	520	75
Per cent in the islands				69.01	28.86	1.93	0.20
Per cent in Jutland				70.76	27.43	1.58	.23

It has heretofore been stated that the school age commences with the seventh year, but there are children in school under that age.

	Number of children taught in public schools.	Number of children under 7 years.	
		Absolute number.	To 1,000.
Towns of the islands	25,980	617	23.75
Towns of Jutland	23,253	407	17.50
Rural districts of the islands	90,472	558	6.16
Rural districts of Jutland	116,901	860	7.36
The whole country	256,606	2,442	a9.52

a Statistiske Meddelelser om Skolevæsenet i Danmark, Kjøbenhavn, 1895.

Subdivided into grades, the following statements are given:

	Principal schools.	Continuation and ambulatory schools.	Winter schools.	Preparatory schools.	Girls' schools.	Total.
Rural districts of the islands	1,204	9	.....	37	143	1,393
Rural districts of Jutland	1,732	142	28	10	119	2,029
Total	2,936	151	28	47	262	3,422

The subdivisions of higher and mixed schools are as follows:

	Communal Real schools.	Pay schools.	Mixed pay and free schools.	Free schools.	Girls' schools and preparatory schools.	Other schools.	Totals.
In Kjøbstæderne of the islands.	14	11	7	44	9	4	89
In Jutland's Kjøbstæderne....	7	8	1	32	5	2	55
Total.....	21	19	8	76	14	6	144

In proportion to the population there was in Kjøbstæderne of the islands 1 school to 2,500 inhabitants and in Jutland 1 to to 3,440 inhabitants.

The classes in higher and people's schools (Borger-og Almueskolevæsenet) in rural districts were as follows:

	Number of schools with—									Total number of classes.
	One class.	Two classes.	Three classes.	Four classes.	Five classes.	Six classes.	Seven classes.	Eight classes.	Several classes.	
In rural districts of the islands..	8	845	60	269	7	17	1	2	4	3,172
In rural districts of Jutland.....	99	1,497	116	165	6	12	2	2	1	4,243
Total	107	2,342	176	434	13	29	3	4	5	7,415

As will be observed, the greater proportion of schools have two classes; the average number of classes to each school is, for the islands, 2.60; for Jutland, 2.23. Divided into schools for boys, girls, and coeducational schools, the numbers in rural districts (Landdistrikterne)[1] were:

	Classes for boys.	Classes for girls.	Coeducational (mixed) classes.	Total number of classes.
In rural districts of the islands.....	50	45	3,077	3,172
In rural districts of Jutland.....	29	28	4,186	4,243
Total	79	73	7,263	7,415

That is, in rural districts of Jutland 98.5 per cent of the classes are coeducational and in the island districts 97.7 per cent.

This represents in the rural districts of the islands 1,193 coeducational schools and in Jutland 1,885.

The classes in Kjøbstæderne are thus enumerated:

	Classes for boys.	Classes for girls.	Mixed classes.	Total.
Kjøbstæderne of the islands.....	412	319	108	839
Kjøbstæderne of Jutland.....	310	275	171	756
Total	722	594	339	1,655

[1] Statistiske Meddelelser om Skolevæsenet i Danmark, pages 29–31.

The average number of classes for each school was, for the island, Kjøbstæder, 10.1; for Jutland Kjøbstæder, 13.7, expressed in per cent.

The number of pupils to a school is indicated in per cent. There were less than 50 pupils in 20 per cent of the rural schools of the islands and in 36.6 per cent of Jutland rural schools; from 50 to 100 pupils in 62.3 per cent of schools in the islands and 54.7 per cent in Jutland; over 100 pupils in 17.7 per cent of the island rural schools and in 8.7 per cent of the rural schools of Jutland. In the Kjøbstæder the following table gives the best presentation of the number of pupils in school:

	Pupils.													
	Less than 100.	100 to 199.	200 to 299.	300 to 399.	400 to 499.	500 to 599.	600 to 699.	700 to 799.	800 to 899.	900 to 999.	1,000 to 1,099.	1,100 to 1,199.	1,200 to 1,299.	1,300 to 1,399.
Kjøbstæderne of the islands	19	25	12	8	6	3	2	2	3	4	....	1	....	1
Kjøbstæderne of Jutland	11	5	8	11	4	4	1	5	6	3	....	....	....	....
Total	30	30	20	19	10	7	3	7	9	7	....	1	....	1

According to the law of 1856, if there are more than 100 pupils to a teacher, then a second teacher shall be employed. There are in rural districts 1,247 schools with from 60 to 100 pupils, 624 with from 70 to 100 pupils, and 221 with from 80 to 100 pupils, and these numbers are under charge of one teacher. But counting by classes, three-fourths of the classes in rural districts have less than 35 pupils to a class. In Kjøbstæderne the per cent is even less in some cities; less than 30 pupils are under instruction in one class.

PEOPLE'S HIGH SCHOOLS AND AGRICULTURAL SCHOOLS.

The above-mentioned schools are of special interest in these northern countries, as they greatly aid in developing the hard-working population far from centers of civilization. The whole higher school movement has been, in a sense, independent of the State, yet connected with it through the subsidies which aid in maintaining its schools. The work of private initiative, these schools arranged their plans according to general methods found in State schools, if such methods were found by the directors to be available. By the law of 1892 the Government assumed direction of the people's high schools and agricultural schools (Folkehøjskoler og Landbrugskoler). Each recognized school was allowed 300 crowns ($80.40) from the governmental budget, average 10 crowns ($2.68) to each pupil, until this amounted to one-third of the fund for teachers and apparatus; but no school is to receive more than 3,000 crowns ($800), nor is the whole State budget to be over 120,000 crowns ($32,160). To receive aid, the school must

have at least ten pupils, and no pupil is to be admitted under 16 years of age. The boys, however, are more satisfactory as pupils when 18 years of age. For the maintenance of backward children the "recognized" schools receive a subsidy of 20 crowns ($5.36) monthly in proportion to the half of the pupils of the last financial year. The county school boards (Amtsskoleraadne) arrange for the amounts, so that the subsidy in toto does not reach over 180,000 crowns ($48,240). The minister of public instruction has the highest general superintendence of maintenance and plans of instruction.

The first people's high school was founded in Rødding in 1844. In 1892–93 there were in Denmark 77 high and agricultural schools receiving aid from the State. Other schools had existed, but had been given up. The high schools were divided in 1892–93 as follows, according to their studies: Agricultural studies, 52 schools; natural sciences, 73; land surveying, 59; drawing, 72; arithmetic, 75; Danish, 75; history, 72; geography, 71; constitution of the country, 33; gymnastics, 58; singing, 50; religion, 27; Slöjd, 51; foreign languages, 15.

School year.	Boys.	Girls.	Total.
From November, 1853, to November, 1854	.....	.....	200
Winter of 1863 to May, 1864	.....	.....	471
Last quarter of 1867 to March 31, 1868	.....	.....	1,100
Last quarter of 1868 to March 31, 1869	.....	.....	1,500
Last quarter of 1872 to March 31, 1873	2,093	840	2,933
Last quarter of 1873 to March 31, 1874	2,132	1,003	3,135
Last quarter of 1874 to March 31, 1875	2,308	1,108	3,416
From October, 1891, to August, 1892	2,789	2,019	4,808
In summer of 1893	.....	.....	2,300
In winter of 1893–94	.....	.....	3,500

Total number of pupils in the fifty years was 110,000, namely, 75,000 boys and 35,000 girls.[1]

In 1892–93 there were connected with the 77 schools 75 directors, 170 permanent teachers, and 140 teachers by the hour, 4 directresses, 82 permanent women teachers, 58 women assistants and teachers by the hour.

Of the women teachers 2 directresses, 3 permanent teachers, and 8 by the hour (Timelærerinder) had passed the teacher's examination; 29 permanent and 13 assistant teachers had passed the high-school examination; the others were without special instruction.[2]

In the fifty years since the opening of the people's high schools and the agricultural schools between 1,600 and 1,800 men and 500 and 600 women teachers have been employed in instructing the students pursuing courses here.[3]

[1] Danmarks Folkehøjskoler og Landbrugskoler, 1884–1894, ved H. Rosendal.

[2] Statistiske Meddelelser om Skolevæsenet i Danmark: Kjøbenhavn, 1895.

[3] Danmarks Folkehøjskoler og Landbrugskoler, 1844–1894, ved H. Rosendal, pages 175, 176.

The amount of State aid to such schools is shown in the following table:

STATE AID TO PEASANT HIGH SCHOOLS.[a]

Year.	Crowns.	Dollars.	Year.	Crowns.	Dollars.
1851–1853	4,000	1,072	1855–1857	10,000	2,680
1853–1855	6,000	1,608	1857–1860	20,000	5,360

[a] The peasant high schools of 1851–1860 appear to have been developed into the people's high schools of 1860–1892, although this is not explicitly stated.

STATE SUBSIDY TO PEOPLE'S HIGH SCHOOLS.

Year.	Crowns.	Dollars.	Year.	Crowns.	Dollars.
1860–1867	22,000	5,896	1886–1890	40,000	10,720
1867–1879	28,000	7,504	1890–1892	55,000	14,740
1879–1886	55,000	14,740	1892 on	120,000	32,160

As an aid to indigent pupils the State gave as follows:

STATE AID TO INDIGENT PUPILS.

Year.	Crowns.	Dollars.	Year.	Crowns.	Dollars.
1860–1871	12,200	3,537	1879–1886	100,000	26,800
1871–1875	22,000	5,896	1886–1892	90,000	24,120
1875–1876	44,000	11,792	1892 on	180,000	48,240
1876–1879	66,000	17,688			

In order to give teachers opportunities for improvement, and also to aid them, the State gave:

STATE AID TO TEACHERS.[a]

Year.	Crowns.	Dollars.	Year.	Crowns.	Dollars.
1856–1857	5,000	1,340	1884–1889	50,000	13,400
1857–1870	9,600	2,573	1889–1890	65,000	17,420
1870–1873	15,500	4,154	1890–1892	67,000	17,956
1873–1876	24,000	6,432	1892–1893	85,000	22,800
1876–1878	30,000	8,040	1893–1894	90,000	24,120
1878–1882	40,000	11,720	1894–1895	93,000	24,656

[a] Statistiske Meddelelser om Skolevæsenet i Danmark, page 42.

A writer in the London Times, describing these two classes of schools, gives some rather interesting details, which are here quoted:

Last Saturday (September 8, 1894) in a hamlet in south Jutland, not far from the German frontier, more than twenty teachers and leaders from every part of Denmark and Norway, from Sweden and from Finland, met to celebrate a double event—the one hundred and eleventh anniversary of the birth of Bishop Grundtvig, the founder of the Danish high schools, and the fiftieth anniversary of the first of these schools.

These schools are peasants' continuation schools, which have had a remarkable success in Denmark, more particularly since the war with Germany in 1864.

These schools, amounting now to 67, besides 18 agricultural schools conducted on similar lines, have succeeded in awakening the poorest peasants, the plowmen,

the hedgers and ditchers, the cooks and dairymaids, the sailors and fishermen, from their intellectual torpor and in imparting to them a wider and more intelligent interest in men and things.

Grundtvig's pupils, young teachers and theological students, have gone through the length and breadth of the land preaching an intellectual crusade, and by the help of homely illustration and apt repartee have succeeded in awakening the keenest desire for knowledge for its own sake.

Out of a working population of about a million and a half 6,000 young men and women, most of them between the ages of 18 and 25, flock every year to these schools and there live a common life under the same roof—the men for the five or six winter months and the women for the three summer months.

To enable them to do this the expenses are reduced to a minimum—about $75 for six months' instruction, board, and lodging, including all extras; and the poorer half of the students, on the recommendation of a clergyman or other authority, receive State bursaries that defray half the cost. * * *

Scientific education is professional and can never become the possession of the multitude. Children, perhaps also grown-up people, can be trained to pick up the crumbs that fall from the table of science, but intelligence derived in that way will only be fractional, will only become a demicivilization, a "boyish science," as Grundtvig liked to call it, and has just as little to do with real science as with real education. It is well to dilate on the means whereby all this interest is maintained from year to year. Science is of course taught, but that is not the mainstay. What is most relied upon is the lively teaching by the voice rather than by textbooks, of the "humanities" of history, language, and literature, particularly those of the native country, though not to the exclusion of the history and literature of other countries, both in ancient and modern times. * * * The Danish peasant, after a winter or two at the high school, may, as soon as his resources allow him, have a winter at the agricultural or technical schools. The 67 high schools and the 18 agricultural schools are closely related to one another, being united in one common association. * * * Not only the most but the best of the pupils in the agricultural schools have first been pupils of the high schools; that between 1870 and 1880, when Danish agriculture was on the brink of ruin and it became necessary to turn from corn growing to dairy work, and again in 1880, when cooperative dairies dealing with the milk of a score or two of farms were required in order to produce the finer qualities of butter for the English market, it was the bright ready intelligence of the old high-school pupils that enabled the requisite changes to be made with rapidity and success.

We in England recognize for our middle classes the necessity of grafting technical training on the humanities, if the graft is not to wither and die. Grundtvig's merit as an educationist was his seeing so clearly that, mutatis mutandis, precisely the same method was alike necessary and feasible for the humblest peasant or artisan. And so, as he had also the courage of his convictions, he had the happiness before his death, in 1872, of seeing his vision already a reality.

Very many thousands of young men and women have by this time passed through these schools of citizenship and patriotism, and it is easier to imagine than to estimate exactly their influence on the prosperity of agriculture and trade, on the removal of social barriers, and on the growth of constitutional and religious freedom.

SECONDARY SCHOOLS.

Convent and cathedral schools, dating from the introduction of Christianity in 965, were the predecessors of the famous Latin schools established in Viborg, Ribe, Odense, and Copenhagen for clericals and laymen of the higher classes. The establishment of two grades

of Latin schools under clerical supervision dates from the Reformation period. They admitted students from both urban and rural districts to their three or four classes. A third class of schools—the scholæ vulgare (Skriveskoler) or writing schools—omitted Latin, and were under the supervision of municipal authorities. At the commencement of the sixteenth century city schools predominated; the country population had almost no instruction except in the catechism from the sacristan or degn of the parish, who gathered together the neighboring children of a rural domain or "Gaard."

As early as 1537 the number of classical schools (lærde Skoler) was 39 (in Seeland, 15; in Jutland, 24).[1] During the centuries which followed this class of schools decreased and institutions developed which were more practical in instruction, or perhaps their funds were transferred to lower grade schools, wherein the Danish language, instead of Latin, became the medium of communication. In the middle of this century the classical schools were as follows:[2] The Metropolitanskoler in Kjöbenhavn, seven Katedralskoler in Roskilde, Odense, Nykjöbing near Falster, Aarhus, Aalborg, Viborg, and Ribe, and the schools of Randers, Horsens, and Hilleröd (Frederiksborg lærde Skole) and the Sorø academic secondary school[3] (Sorø Akademisk lærde Skole). The "lærde Skoler" were, as late as 1805, under the same general supervision as that of the university, but in 1848 the minister of ecclesiastical affairs and public instruction had charge. At the present time the laws governing these schools are those of 1871, with additions and modifications in 1882 and in 1893. The "lærde Skoler" now have six classes, and the students enter at the close of the twelfth year, remaining to the close of the eighteenth year of their age.[1]

The average number of students in these classical schools is as follows in various years:

RECEIVING CLASSICAL INSTRUCTION.

Year.	Students.	Year.	Students.	Year.	Stu. dents.	Year.	Students.
1821–1845	848	1870–1875	1,372	1883	1,837	1887	1,931
1843–1847	859	1880	1,514	1884	1,907	1888	1,892
1849–1860	1,374	1881	1,613	1885	1,970	1889	1,906
1863–1870	1,632	1882	1,719	1886	1,972	1890	1,871

The decrease in pupils between 1863–1870 and 1870–1875 was due to the outcome of the war of 1864.

[1] Statistiske Meddelelser om Skolevæsenet i Danmark.

[2] Retsregler for det höjere Skolevæsen i Danmark.

[3] The Sorø Academy was founded in 1580; changed to Knights Academy in 1749; a strictly classical school since 1849.

From that period the tendency was more toward practical instruction.[1] The private "Latin skoler" (the one at Herlufsholm dates from 1605) numbered 5 in the middle of this century; in 1882 there were 18, of the number 11 in Copenhagen and 1 in Frederiksborg. Among these are included communal schools of Fredericia Kolding, Vejle, and Helsingør, the pay schools of Herlufsholm and Birkerød, and latterly a pay school at Ordrup. The number of pupils of the private Latin schools reported for the years of 1849–1863 was 1,007; in later years the higher classes for the so-called students and real students (Studerende og Realistor) had the following quota:

NUMBER IN SIX UPPER CLASSES.

Year.	Pupils.	Year.	Pupils.	Year.	Pupils.
1882	1,929	1885	2,250	1888	2,110
1883	1,990	1886	2,228	1889	2,135
1884	2,075	1887	2,074	1890	2,229

The secondary schools, as stated above, include classical and real divisions. The former are divided into the philologico-historical section, and the mathematico-natural science section. Between the secondary and the elementary grades are burgher schools, with courses in Danish, French, German, and English languages, history, geography, arithmetic, geometry, natural history, penmanship, and drawing. These burgher schools are similar in character to the German Real schools, but not of as high grade as the Danish Real school.

In the "laerde" and Real schools the course of study is similar for the lower classes. The Real school does not require Greek; but three modern languages are obligatory. The classical (laerde) school has French obligatory for six years, German through four years, and that or English in the two upper classes. The following statistics indicate the trend of study for various years, whether toward the university or toward practical life:

IN THE STATE SCHOOLS.

Year.	Students.		Real students.	First and second classes.	Total.
	Philologico-historical.	Mathematico-natural science.			
1882	611	113	429	566	1,719
1883	646	126	463	602	1,837
1884	657	142	504	604	1,907
1885	678	162	546	584	1,970
1886	696	154	552	570	1,972
1887	709	167	536	519	1,931
1888	686	167	523	516	1,892
1889	643	194	543	523	1,903
1890	605	203	550	513	1,871

[1] Statistiske Meddelelser om Skolevaesenet i Danmark.

In other classical schools the proportion was as follows:

Year.	Students.		Real students.	First and second classes.	Total.
	Philologico-historical.	Mathematico-natural science.			
1882	539	89	737	564	1,929
1883	564	116	739	571	1,990
1884	580	158	748	590	2,076
1885	652	162	839	597	2,250
1886	621	180	859	568	2,228
1887	529	184	816	545	2,074
1888	518	205	840	547	2,110
1889	525	227	830	553	2,135
1890	563	256	883	527	2,229

A gradual progression is noticeable in the number of students of the mathematico-natural science section, although the numbers do not reach those of the philologico-historical section. The so-called "Realister"[1] outnumber all other students in the universities, indicating, doubtless, that there, as elsewhere, the tendency of study is toward practical life. In the years 1875–1892 (inclusive), 5,727 students were prepared for the university. In the period 1875–1888 there was an average of 261 annually, or 159 in 1875 to 406 in 1888. Of the total, 4,538 took the historico-philological examination, 1,189 the mathematico-natural science examination.

Since 1875, women have been permitted to enter the university, and from 1875 to 1892 (inclusive) 85 women entered. The percentages of students in these secondary schools, reckoned according to age, were as follows:

Year.	Class of schools.	16 years.	17 years.	18 years.	19 years.	20 years.	21 years.	22 years and over.
1893	State schools	.....	4.8	38.7	40.4	10.7	3.6	1.8
	Private schools	0.9	6.9	31.5	23.7	14.8	6.5	15.7
1885	State schools	.6	14.3	34.3	30.2	14.3	4.6	1.7
	Private schools	.....	15.7	33.3	22.9	10.5	5.2	12.4

The greater proportion of second classical students were from official and agricultural classes, although the children of business men gravitated in large numbers into the private classical schools.

The number of hours each week in the different classes is presented in tabular form below. Gymnastics and singing are omitted. The maximum is given in parentheses, the general average stands just above:

Years.	Class VI.	Class V.	Class IV.	Class III.	Class II.	Class I.
1855–1856	32.85 (30.35)	32.62 (28.35)	33.09 (32.34)	33.85 (32.34)	33.85 (32.34)	33.85 (32.34)
1877–1878	29.83 (29.30)	30	30	30	30	30
1893–1894	30.15 (30.32)	30.15 (30.32)	30	30	30	30

[1] It may be said here that there are 98 schools which prepare for the Real examinations, and 69 of them are exclusively Real schools or secondary schools leading to practical life.

According to the new plan of study established in 1871, the following table gives the time regulated as above in the different studies:

Studies.	1855–1856.					
	VI.	V.	IV.	III.	II.	I.
Danish	2.46 (2-3)	2.46 (2-3)	2	2.1 (2-3)	2.1 (2-3)	2.85 (2-4)
History	3	3	2-3	2-3	2	2-3
Geography			2	2	2	2
Natural history			2-3	2	2	2
German			3	3	2-3	2-4
Religion	2	2	2	2	2	2
Writing					1	2
Drawing						0-2
French			2-3	2-3	2	2-4
Latin (Philologico-historical / Mathematico-natural science)	9.5	9.46	8.6	8.92	8.92	9.23
Greek (Philologico-historical / Mathematico-natural science)	5.3	5.3	4.92	5.2	5.15	
Mathematics (Philologico-historical / Mathematico-natural science)	4	4	4	4	4	4
Natural science (Philologico-historical / Mathematico-natural science)	2-4	2-4				

Studies.	1877–1878.					
	VI.	V.	IV.	III.	II.	I.
Danish	4	4	3	2-3	2	3
History	4	3	2	2-3	2	3
Geography			2	1	2	3
Natural history			2	2	2	3
German			2	2	2	3
English	2	2				
Religion	1	1		2	2	3
Writing					1	3
Drawing						1
French	3-4	3-4	2-3	2-3	3	3
Latin (Philologico-historical)	8	8	8	7	8	6
Latin (Mathematico-natural science)	0-1					
Greek (Philologico-historical)	5-6	5-6	5	5		
Greek (Mathematico-natural science)						
Mathematics (Philologico-historical)			5-6	4-5	5-6	6
Mathematics (Mathematico-natural science)	8-10	8-12	7-8	4-7		
Natural science (Philologico-historical)	3	3				
Natural science (Mathematico-natural science)	5	5	2-3	2		

Studies.	1893–1894.					
	VI.	V.	IV.	III.	II.	I.
Danish	4 (3-4.5)	4.15 (4-5)	2.15 (2-2.5)	2.23 (2-3)	2	2.92 (2-3)
History	3.1 (3-4)	3	2	2.1 (2-3)	2.46 (2-3)	2
Geography			1.7 (1-2)	1.23 (1-2)	2	2
Natural history			2	1.8 (1-2)	2	2
German			2	2	2.1 (2-3)	2.1 (2-3)
English	2	2				
Religion	1	1	0.92 (0-1)	1.7 (1-2)	2	2
Writing					1	2
Drawing						1
French	3.35 (3-4)	3.2 (3-4)	2	2.6 (2-3)	3.1 (3-4)	3.46 (3-4)
Latin (Philologico-historical / Mathematico-natural science)	7-8	7-8	7.4	7	7.5	6
Greek (Philologico-historical / Mathematico-natural science)	5-6	5-6	4-5	5		
Mathematics (Philologico-historical / Mathematico-natural science)	9.69	9.75	5.15	4.7	5.75	5.80
Natural science (Philologico-historical)	3	2.46		6.5		
Natural science (Mathematico-natural science)	6	4.75	2.22	2.11		

In the Real classes (Realklasserne[1]) the hours devoted to different branches are here noted.

Studies.	1856-57.				1877-78.				1893-94.			
	IV.	III.	II.	I.	IV.	III.	II.	I.	IV.	III.	II.	I.
Religion		2	2	2	2	2	2	2-3	1	2	2	2
Danish	2-3	2	2	2	2	2	2	3	3	3	2	3
German	2	2	2-3	2-3	3	3	3-4	3-4	2-3	2-3	2-3	2-3
French	2	2	3	3	2-3	2-3	3	3	2-3	2-3	3	1
English	3	3	3-4	3	3-4	3-4	3-4	3-4	4	4	3-4	3-4
History	3	3	2	2	2-3	2-3	2-3	2-3	3	2-3	2-3	2
Geography	2	1	2	2	2	2	2	2	1-2	1-2	2	2
Mathematics	7	6	6	6	5	5	4	4	7	6-7	6	6
Natural history	2	2	2	2	2	2	2	2	2	2	2	2
Physics	2-3	2			2	2	2		2	2		
Drawing	1	2	2	2	1	1	1	1-2	0-1	1	2	2
Writing	0-1	1	1	2	1-2	1-2	1-2	2	0-1	0-1	1	2

In these schools the year of study begins on August 19 and its length is 250 days; that is, there are 250 lecture days (Laesedage). The number of teachers in the royal classical schools, Sorø Academy excepted, was 144 in 1893 to 101 in 1848. Viewed according to the professions for which the teachers were preparing, it is observed that persons seeking philological and philosophical degrees increased from 1848 to 1893, while there was a distinct decrease in persons seeking theological preparation.

A new order pertaining to the pay of teachers of these classical schools was promulgated in 1892. The rectors were to receive, with free lodging, 4,200 crowns ($1,125), with an increase of 400 crowns ($107) in five years until 5,000 crowns ($1,340) is reached. Salary of the head teachers was 3,000 crowns ($804), increasing 400 crowns ($107) every five years until 4,200 crowns ($1,125) is reached.

Assistant teachers receive 1,800 crowns ($482), with increase of 200 crowns ($53) every three years until 2,400 crowns ($643) has been reached; thereafter 300 crowns ($80) extra every three years until 3,000 crowns ($804) is reached. The principal teachers must not exceed the assistant teachers by more than one-third. Similar regulations govern Sorø Academy.

The King appoints the rector, the principal teachers, and adjuncts, who receive pensions in accordance with the regulations governing teachers generally. The minister of public instruction appoints the teachers by the hour (Timelaerere), and no one of these can become an assistant teacher until after two years' trial; then the "Timelaerere" may receive an appointment from the King or he may be retired. Over 56 per cent of these "Timelaerere" receive 1 crown (26.8 cents) or more an hour; 20 per cent receive from 0.80 to 0.90 öre; others 40.2

[1] The Real schools proper are treated further on. These classes train the students more practically than the classical divisions.

cents. In the private "laerde" schools of Copenhagen the time and salary of the "Timelaerere" are thus presented:

Salary (in crowns) per hour.	United States currency.	Number of teachers.	Per cent of teachers.	Number of hours.	Per cent of hours.
4.00 to 5.00	$1.07 to $1.34	2	0.89	12	0.38
3.00 to 4.00	.80 to 1.34				
2.00 to 3.00	.53 to .80	6	2.68	82	2.25
1.50 to 2.00	.40 to .80	19	8.48	298	8.19
1.00 to 1.50	.26 to .40	89	39.73	1,625	44.66
.90 to 1.00	.24 to .26	21	9.37	372	10.25
.80 to .90	.22 to .24	24	10.72	365	10.04
.70 to .80	.18 to .22	20	8.93	284	7.80
.60 to .70	.16 to .18	25	11.16	265	7.29
.50 to .60	.14 to .16	10	4.46	187	5.14
Under .50	Under .14	8	3.58	147	4.05

As for the economic side, the school fees in the State classical schools were, as a rule, from 120 to 144 crowns ($32 to $38), with rebate if there were two or three brothers attending during the four years. In the coeducational classes of the Copenhagen Latin schools the boys pay from 6 to 12 crowns ($1.60 to $3.20); in the six higher classes from 14 to 18 crowns ($3.75 to $4.82). The registration fees are 4 crowns ($1.07); fuel, 4 crowns; slöjd, 1 to 2 crowns a year, in United States currency, 26.8 to 53.6 cents. The income and expenditures in the different years for the classical schools and for Sorø Academy is presented below. There are many free places in these schools.

Schools.	Years.	Income.	Expenditure.	Increase (+) or decrease (—).
		Crowns.	*Crowns.*	
Sorø Academy	1876–1881	592,743	526,776	— 65,967
Classical schools		563,117	519,958	— 43,159
Sorø Academy	1881–1886	575,711	566,178	— 9,533
Classical schools		579,791	586,384	+ 6,593
Sorø Academy	1886–1891	505,469	489,072	— 16,397
Classical schools		524,060	*a* 734,337	+210,277

a The noticeable increase here is on account of new schools, funds for honorarium, and prizes. The crown is valued at 26.8 cents.

Real schools.—There have been classical schools, with object of preparing for university study, under the care of the State for years; but it is only within a recent period that Real schools have been instituted. In the older laws at the beginning of the century the Real or practical side of training was associated with the elementary grades, the first beginnings being in the forties at Aarhus, Sorø, and Rønne. Royal resolutions of 1855 placed the Real school on a similar basis to that of State classical schools for a common examination. In 1838[1] there was a preparatory examination at the university for those who intended to take special courses. In 1859 it was found necessary to have an

[1] Statistiske Meddelelser om Sholevaesenet i Danmark, Kjøbenhavn, 1895.

examination—of a lower grade—as a maturity examination for the real schools, that is, in such schools as did not seem to come under the plan of 1855. Finally, in 1857, a preparatory examination of a higher grade in the university was decided upon as an outcome of the graduation examinations for the Real schools ("Real Afgangseksamen") of 1855. Again, in 1881, all these examinations were done away with and a common preparatory examination (almindelig Forberedelseseksamen) was held before a commission appointed for such purpose, or in the schools. The differences in the examinations were shown somewhat by the fact that some students took two or three foreign languages, while others did not. English is obligatory in both cases. A decree of 1882 gave women the right to take this examination.

In 1891 a burgher school examination was instituted, in part equivalent to the former lower grade examination of the Real schools. It permitted children of confirmation age to enter the practical training schools. This gave no public rights, but only indicated an extension of the communal school studies. Since 1886 the State has assumed control over this practical side of education. The Real school[1] subsidies are given to the communal and private Real schools and to that subdivision of the classical school. The examinations are controlled by the State and there is a Real school inspector (Undervisningsinspektor for Realskolerne).

The following table indicates the status of Real school instruction to June 1, 1894. It is headed "Meddelelser om Realundervisningen," but seems to include all schools where practical training is given in accordance with Real school methods:

Schools.	Number.	Students.	Boys.	Girls.	From other places.	Parents' position.				
						Officials and business men.	Merchants and tradesmen.	Mechanics (Handverkere).	Artists.	Private scientific men, etc.
Boys' schools in Copenhagen	16	3,564	3,564	.....	97	572	1,249	603	64	32
Classical schools	12	574	574	.....	206	106	173	86	.....	3
Communal Real schools outside of Copenhagen	29	3,530	3,160	370	395	536	918	877	2	21
Private Real schools outside of Copenhagen	44	4,209	3,419	790	1,170	719	1,213	590	14	35
Girls' schools in and outside of Copenhagen	23	2,970	.....	2,970	252	550	1,069	257	30	25
Total	124	14,847	10,717	4,130	2,120	2,483	4,622	2,413	110	116

[1] Instruction for practical duties is given in these groups of schools: communal, private, in the Real subdivision of the classical schools, as well as in legally constituted Real schools.

Schools.	Parents' position.										
	Managers.	Private teachers.	Physicians.	Lawyers.	Agriculturists.	Seamen.	Day laborers.	Other trades.	Private individuals and pensioners.	Widows.	Orphans.
Boys' schools in Copenhagen	243	53	51	44	61	125	26	100	70	257	14
Classical schools	14	9	10	8	86	3	2	4	9	57	4
Communal Real schools outside of Copenhagen	95	11	59	51	247	191	123	81	27	202	29
Private Real schools outside of Copenhagen	225	64	80	42	572	121	70	106	50	266	42
Girls' schools in and outside of Copenhagen	200	30	100	99	95	36	8	101	58	279	33
Total	777	167	300	244	1,061	476	229	392	214	1,121	122

Of the total number of students (14,847) there were 6,454 in the Real classes proper, the remainder (8,393) in lower classes. Of the 6,454, the boys numbered 4,838, girls 1,616; that is, 25 per cent were girls; or of the total number of students 28 per cent were girls. As for the personnel of the teachers, the subdivision was as follows in twelve communal schools and 42 private Real schools in 1894:

Schools.	Permanent teachers.	By the hour. (Timelaerere.)	Of the permanent teachers.			
			Candidates in theology, philology, philosophy, polytechnic teachers, pharmacists.	From normal schools.	Other places.	Women teachers.
Communal	90	42	50	37	4	9
Private	237	94	67	95	13	62

The subsidies received from different sources in the year 1893–94 were as follows:

Schools.	State.	County.	Communal.	Other sources.
	Crowns.	*Crowns.*	*Crowns.*	*Crowns.*
Communal	46,000	7,300	32,000	17,000
Private	58,000	11,500	15,500	4,600
Total	104,000	18,800	47,500	21,600

The total amount was 191,900 crowns ($51,429). For the financial year 1894–95 some 33,900 crowns ($9,085) of the Sorø Academy fund were distributed to 19 communal schools, 68,600 crowns ($18,304) to 49 private schools, 6,800 crowns ($1,830) to 10 private schools for girls, or a total of 109,300 crowns ($29,294), while from the classical school fund a subsidy of about 30,000 crowns ($8,040) was given to

private schools and Real schools. The following number of persons passed the preparatory examination in 1883–1894:

Persons who have passed the "Almindelig Forberedelseseksamen" in 1883–1894.

Year.	In the schools.	Before the commission.	Total.	Year.	In the schools.	Before the commission.	Total.
1883	354	41	395	1889	735	326	1,061
1884	428	108	536	1890	760	352	1,112
1885	562	129	691	1891	815	308	1,123
1886	735	136	871	1892	877	280	1,157
1887	819	181	1,000	1893	876	243	1,119
1888	689	339	1,028	1894	900	274	1,174

As will be observed, the number of those passing the examination trebled in ten years.

Schools.	Number of schools on Apr. 1.	Number of pupils on Apr. 1.	Within the town on Aug. 15.	Without the town on August 15.	Position of parents. Officials and functionaries.	Merchants and tradespeople.	Mechanics.	Agriculturists.	Seamen.	Other positions.
Outside of Copenhagen.										
Communal schools:										
1888–89	20	2,326	2,028	415	579	755	726	335	163	246
1885–86	15	1,642	1,257	314	421	553	489	335	52	155
Private Real schools:										
1888–89	31	2,048	2,164	792	882	982	664	671	131	317
1885–86	12	1,997	1,464	588	600	697	465	491	70	209
Royal classical schools:										
1888–89	12	519	329	190	147	211	103	136	4	87
1885–86	13	476	315	322	154	245	85	147	8	34
In Copenhagen.										
Private Latin and Real schools:										
1888–89	22	3,084	2,087	97	652	1,037	481	95	94	379
1885–86	14	1,238	1,221	41	360	592	320	56	56	148
Total:										
1888–89	85	7,877	6,618	1,494	2,260	2,985	1,974	1,237	392	1,029
1885–86	63	5,353	4,257	1,165	1,535	2,057	1,359	1,029	186	546

Schools.	Number of schools.	Permanent teachers.	Teachers by the hour.	Of the permanent teachers. Candidates in theology, philology, philosophy, polytechnic teachers, pharmacists.	Normal schools.	Other positions.	Women teachers.	Subsidies. From the State.	From the county.	From the commune.	Capital funds and other sources.
								Crowns	*Crowns*	*Crowns*	*Crowns*
Communal schools:											
1888	12	88	46	46	32	1	9	41,900	7,400	22,200	15,600
1885	11	70	40	43	22	1	4	37,000	6,600	22,300	14,400
Private schools:											
1888	27	160	55	46	67	14	33	44,700	6,700	13,000	3,700
1885	21	119	37	31	54	12	22	28,400	5,600	10,900	3,300
Total:											
1888	39	248	101	92	99	15	42	86,600	14,100	35,200	18,700
1885	32	189	77	74	76	13	26	85,400	12,200	33,200	17,700

To more thoroughly understand the course of study in the Real and classical schools, it is here stated that in the four lower classes the courses are identical, with this exception: The Real schools have no Greek and the "laerde skoler" no geometrical drawing or science in these classes. Attendance is from the twelfth to the eighteenth year. In the classical schools French is obligatory for all six years; German through the fourth class, although the student may continue it or take English instead in the upper classes. The Real schools have three modern languages obligatory. At the closing examination a written French exercise is required, and the pupils give oral demonstration of the German or English language. The Real-school students who wish to go to the polytechnic or the academy of forestry pass an examination in three languages; other students in English, with either German or French.

THE UNIVERSITY AND SPECIAL SCHOOLS.

The university in Copenhagen (with its courses of study in law and political science, theology, medicine, philosophy, literature and philology, and mathematical sciences) was so fully described on pages 534–536 of the Report of the Commissioner of Education for 1889–90 that only slight mention will be made of it here.

Founded in 1479, it has 40 professors and about 1,300 students; women have been admitted to its faculties (except theology) since 1875, when a royal decree accorded them "le droit de cité académique."[1]

A college of pharmacy was founded in 1892; 7 teachers are engaged in instructing the pupils. In the same year a veterinary and agricultural college was founded in Copenhagen, which has 22 teachers. Twenty-one agricultural and horticultural schools have a course of study leading to the college course. A royal academy of fine arts dates from 1754; connected with it are 7 teachers.

Institutions for the blind, deaf-mutes, and idiots are fully described on pages 542–546 of the above report. These institutions are national or subsidized and are under control of the ministry of public instruction.

THE TEACHER: PREPARATION FOR POSITION; ASSOCIATIONS.

The new Danish normal school law of March 30, 1894,[2] seems to permit the training of both men and women for the position of teacher in the State normal schools, situated in Fionia, Jutland, and Seeland. Private normal schools are also reported for both sexes; and in the last decade these were the only schools to which women were admitted when desiring to fit themselves for a teacher's position.

The State schools have, as formerly, a three years' course, to be admitted to which the individual must be fully 18 years of age.

[1] La femme au point de vue du droit public, par M. Ostrogorski.

[2] Vor Ungdom, 1894. Hæfte 2-3.

Practice schools are connected with the normal departments, and there are examinations from class to class. The final examination, after the three years' course, is held by a board of examiners, who determine what written proofs of knowledge shall be given, with the minister of ecclesiastical affairs and public instruction as chairman. The diploma indicates whether the normal student has prepared himself (or herself) for general teaching or for special branches. Pupils of "recognized" private normal schools pass similar examinations to those of the State schools. The minister has also general oversight. Admission to the State normal schools is granted after an examination is passed. The written theses for such examination include dictation, Danish composition, methods of recitation, the explanation of a proverb, moral teaching, writing, arithmetical computations, etc. The oral examination covers questions about grammar, grammatical analysis, arithmetical questions, Danish history, universal geography, religion, and sacred history. Normal school instruction is not gratuitous. Formerly the charges varied at different schools. Now 40 crowns ($10.72) is the fee, but there are free places, and children of teachers have free admission. The State and recognized private normal schools (anerkendte Privatseminarier) receive annual subsidies for aid to teachers, school material, etc. The amounts vary according to the designated purpose, from 1,200 to 5,000 crowns ($321 to $1,340).

A law of March 30, 1892, also established a State school for the training of women teachers to fill positions in preparatory schools (Forskolen), where the children are from 7 to 10 years of age, and the classes include 25 pupils. Instruction from one to one and a half years is considered sufficient for such teachers.

As an additional preparation for the teacher's position, there are opportunities for travel, with consequent broadening of the mind, conferences and associations for the discussion of pertinent educational topics. For instance, "Danmarks Lærerforening" is working for the increase of teachers' salaries, which are considered inadequate in rural districts; and even in Copenhagen the amount contributed by the State is not considered to be ample enough to repay the teachers for their educational efforts. In Copenhagen the discussions among the teachers and before the board of education cover the need of more remuneration for young teachers and for women teachers who act as substitutes, or who give hours of instruction each week beyond a certain limit.

The Danish ministry for ecclesiastical affairs and public instruction has decided that in case changes are to be made by the school committee of rural districts, that teachers be allowed a voice in the matter. Every teacher may not act as a member of the committee, but one may be duly appointed whose duty it will be to present the needs and requirements of the district, if there be changes of teachers, new

school buildings erected, etc. The Danish teachers' association desires to have one of the district teachers as a member of the committee, and to have all teachers of the district meet with the committee annually.

The ministry has also decided upon an annual subsidy at the expense of the commune for the purpose of purchasing books for teachers who may be in need of more advanced culture. The exact amount of subsidy is yet to be decided, and it rests with the school board to see that the plan is carried out. The teachers are to have a voice in the matter, however, and to signify what seems to them most needed.[1]

For the discussion of topics of general interest to all or many of their fraternity the teachers of Scandinavia gather together, in general assembly, every five years in one of these three northern countries. The first meeting was held in 1870 in Göteborg, and 630 teachers from Sweden, 250 from Norway, and 120 Danes took part. The sixth meeting was held in Copenhagen in 1890, with an attendance of 3,000 Danes, 1,100 Norwegians, 1,000 Swedes, and 160 Finns.[1]

In 1895 the teachers met in Stockholm for discussion of subjects interesting to those engaged in educational work in all three countries. The oldest association of teachers, "Paedagogiske Selskab" of Denmark, held its seventy-fifth anniversary in 1895. Many noted educators were present, among them the minister of public instruction.[2] This association dates from 1820, and its members at different periods have earnestly discussed scientific, pedagogical, and practical questions. At first there were 65 members. By degrees the association decreased in numbers and at last became simply a gathering for social enjoyment. In 1840 a new era was entered upon, and the discussions became quite practical in character. Again, toward the sixties, there came a period of retrogression. In 1890 women teachers were admitted to membership. This association is now recognized as a power in matters pertaining to the school system of Denmark. A library of 2,000 pedagogical works and a fund of 60,000 crowns ($16,080) for the aid of teachers in Copenhagen are due to its initiative. There are now 700 members.

On October 13–15, 1895, the Association of Higher School Teachers of Denmark met in Copenhagen. They discussed the need of more time for the study of English and less for Greek in the secondary schools; also the need of teaching the mother tongue, so that through the understanding of the history and literature a nearer bond of union between the three countries—Norway, Denmark, and Sweden—would result.

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[1] Deutsche Zeitschrift für Ausländisches Unterrichtswesen, 1er Jahrgang, Heft I, pages 70–72.

[2] Deutsche Zeitschrift für Ausländisches Unterrichtswesen, 1er Jahrgang, Heft II, Page 181.

The Association of Teachers of Girls' Schools met for the third time in October, 1895, and discussed the need of higher education for women teachers, the object being to prepare them to teach in higher-grade schools. The pensioning of private-school teachers was also considered desirable.

HISTORICAL DATA.

965. Establishment of convent and cathedral schools, from which developed Latin schools (in Viborg, Odense, Ribe, and Copenhagen) for the clergy and laymen of the upper classes. In Iceland, which became subject to Denmark in 1380, the first school can be traced to 981.

1478–79. Founding of University at Copenhagen.

1537 on. Latin schools (instructing in Latin, Greek, religion, singing, and writing) improved and increased in number, giving one to each city; educational facilities lacking in rural districts, except as the clergyman of the parish gathered the children together and taught the catechism. Sorö Academy established in 1580; changed to a Knights' Academy in 1749. It is a strictly classical school since 1849.

1699–1730. Organization by King Frederic IV. of people's schools,[1] a royal decree of 1721 regulating such organization and requiring the attendance of children between 5 and 8 years of age.

1739. (January 23) Elementary instruction rendered obligatory through a decree promulgated by Christian VI (1730–1746); common schools, with instruction in the Danish language, to be established in all large villages; reading, writing, arithmetic, and religion to be taught, and the schools to be supported by a revenue fund, school taxes, fines, and contributions.

1784–1839. Educational reforms inaugurated by the Regent (afterwards) King Frederic VI, who succeeded in establishing a well-organized school system; in 1790–91 the first normal school established at Nörrebro (suburb of Copenhagen), thence transferred to Jönstrup in 1809; on July 29, 1814, decrees[2] promulgated which regulated elementary instruction in urban (Copenhagen excepted) and rural districts, and five normal schools were created.

1828–1840. Gymnastics introduced in 1828 in all schools; in 1835 the first asylum for children established in Copenhagen, and three others created between 1835 and 1842; higher-grade schools were created in 1838, and from 1840 date the present people's high schools (Folkehøiskoler).

1844–1855. Latin schools were transformed into gymnasia and Real schools in 1850; decrees of 1850, 1864, and 1869 regulated examination for admission to the University of Copenhagen; in 1844 and 1857 promulgation of decrees tending toward general improvement in the schools of Copenhagen; in 1855, 1856, and 1864 there were decrees pertaining to urban (Copenhagen excepted) and rural schools.

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[1] At that period the nobility had their tenantry taught on their estates by the clergy or by some one designated for that purpose.

[2] These decrees, the principal features being still in force, established two-class elementary schools in rural districts (in localities rich enough to maintain them) and two schools in each of the larger villages. If feasible, burgher schools, higher-grade schools, and evening schools for adults were to be established, and obligatory attendance in elementary grades was recognized as a feature of the school system.

1856-1867. A law of March 8, 1856,[1] required the construction of class rooms so as to give 90 cubic feet of space and 2 meters 48 centimeters in height for each child. By decree of January 27, 1860, the minimum of school attendance was to be 240 days of 6 hours each. In 1865 institutions were established in Copenhagen for the education of idiots. By law of 1867 a commission (composed of 11 members) was appointed by the Government to examine candidates for the position of teacher.

1874. Iceland, the chief dependency of the Crown, has its own constitution and administration by a charter of January 5, 1874, which went into operation August 1, 1874, and by the terms of which the legislative power is vested in the "Althing." A minister for Iceland, appointed by the King, is at the head of the administration. The highest local authority is vested in a governor-general. Two Amtmænderne, or under-governors, superintend affairs in the northern and western districts.

1875. Women accorded academic rights, with the privilege of obtaining all university degrees, except theology.

1881. Introduction of the "Forberedelseseksamen," or preliminary examination, for both public and private schools of secondary grade. This examination admits to veterinary and agricultural colleges, schools of pharmacy, dentistry, and law, and to appointments (for men) in the post and telegraph service, etc.

1883. A decree required examination in three languages of all Real school students desiring to enter the polytechnic school or the academy of forestry. From 1883 dates the "Studenter Samfundets Aftenundervisning för Arbejdere," an association for the purpose of aiding the working classes to obtain an advanced educational training.

1886. The "Dansk Slöjdforening" first report on manual training schools according to the Aksel Mikkelsen system; object of the association to have manual training as a means of both hygienic and pedagogical development introduced into all grades of schools.

1887. Opening of Danish School Museum in Gladsaks, near Copenhagen; removed to that city in same year; its object to gather modern school material, books, maps, apparatus, etc., from Denmark and other countries; to present historical phases of education; to acquaint teachers and students with pedagogical literature; to make exhibits of school material, etc. The library possessed more than 2,000 volumes in 1894.[2]

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[1] An improvement was noticed very soon after the promulgation of this law. Subsequently to that date we find the following conditions in 100 schoolrooms:

	On the islands.		In Jutland.	
	1857.	1867.	1857.	1867.
Less than 50 cubic feet	7.3	1.41	13.2	7.59
From 50 to 89 cubic feet	60.6	54.08	56.6	59.63
From 90 feet on	31.7	43.65	27.1	31.41
Not reported	.4	.86	3.1	1.28

The three most northern counties (Hörring, Thisted, and Aalborg) of Jutland were the worst off in this respect, for in 1867 (to the 100 school children) less than 50 cubic feet were accorded to 16.1, 14.2, and 7.7 in the respective counties. From 50 to 89 cubic feet were allotted, respectively, to 66.7, 60.5, and 66.9 of the hundred.

[2] Oesterreichischer Schulbote, Dezember 1894.

1890. Resolutions adopted by the Danish Slöjd (manual training) Association in November for the introduction of slöjd in rural schools. A "Dansk Slöjd Lærerskole," for the preparation of teachers of this branch of study, instituted by the Government.

1892. Law gives State control of agricultural and people's high schools (Folke- og Landbrugs Højskolerne); decree of March, 1892, established a school with one to one and one-half years' course for the purpose of training women teachers to take charge of preparatory training of children 7 to 10 years of age.

1894. New normal school law for men and women teachers, age of admission 18 years; course three years with practical instruction in model school; graduation diploma after examination before the board (Censorerne), and minister of ecclesiastical affairs and public instruction.

CHAPTER IV.

EDUCATION IN NORWAY.[1]

TOPICAL OUTLINE.—Population and administration.—Former presentations.—Historical data.—General features of the school system.—Statistics of 1892 compared with 1889.—Expenditures for 1889 and 1892.—Results of law of 1889 statistically considered.—Courses and methods of study.—Pedagogical congress: Discussions in 1894–95.—Physical training.—Coeducation and the transition period.

AUTHORITIES CONSULTED.—Beretning om skolevæsenets tilstand 1889, 1890, 1891, 1892.—Udkast til en forandet Ordning af det höiere skoleväsen.—Universitets og skole annaler 1890, 1892, 1893.—Det kongelige norske Frederiks Universitets Aarsberetning for 1892–93.—Betænkning om Undervisningen i Latin og Græsk, af P. Voss—Vor Ungdom, 1890, 1891, 1892, 1893, 1894, 1895.—Die Volksschulbauten in Norwegen, von Carl Hinträger.—Lois du 26 juin sur l'École primaire.—Revue Pédagogique, août 1895.—Revue Internationale de l'Enseignement, décembre 1893.—La femme au point de vue du droit public, par M. Ostrogorski.—Essai sur la condition politique de la femme, par Louis Frank.—Almanac de Gotha, 1896.—Statesman's Year-Book, 1895.—Journal of Education (London), May, 1892, and April, 1893.—Larousse: Dictionnaire Universel, v. 11.

RÉSUMÉ OF EXISTING CONDITIONS.[2]

A constitutional monarchy vested in the Storthing as legislative power and in the King as executive power, with a council of state as aids. Area, 124,445 English square miles; population, 2,000,917 on January 1, 1891; capital, Christiania; population, 151,239 on January 1, 1891. Total number of youth in schools, 319,373 in 1892, or 15 per cent of the population; in elementary schools, 306,658, or 96 per cent of those in all grades; average of children to a teacher, 61; expenditures, $921,659, or $3.91 per capita for each child. Minister of ecclesiastical affairs and public instruction, J. L. R. Sverdrup; general secretary, M. R. Norby; chief officer in charge of educational affairs, J. C. Johanssen; keeper of the royal archives, H. J. Huitfeld-Kaas.[3]

For local government, Norway is divided into 20 districts, namely: The towns of Christiania and Bergen and 18 counties (Amter), each governed by an "Amtmand" or chief executive functionary. The "Amter" are subdivided into 39 towns and

[1] Prepared by Miss Frances Graham French, specialist in the school systems of northern and eastern Europe.

[2] The Norwegian educational system in extenso was presented in the Report of the Commissioner of Education for 1889–90, pages 475–517.

[3] Statesman's Year-Book, 1896; Almanac de Gotha, 1897.

56 "Fogderier," the latter comprising 22 ports (Ladesteder) and 494 rural communes (Herreder), which are mostly parishes or wards. The "Herred" is governed by a council and a body of representatives three times as large as the council. The councilors (Formændene)—3 to 9 in number—are elected from the different wards of the commune. These bodies elect conjointly, every year, a chairman and deputy chairman from among their number. The chairman, the "Amtmand," and the "Fogderier" or sheriffs form the county diet (Amtsformandskab), which holds an annual meeting to arrange for the county budget. The towns and ports form 58 communes, governed by a council (4 to 12 members in Christiania) and by representatives, who outnumber the councilors threefold. The members of both local governing bodies are elected for the Storthing by voters in towns and rural communes. The chief functionary of each county and the bishop of each diocese are members of a county board which looks after educational interests. The municipal council votes on the school budget, and some members belong to the district school board; a member of each local school committee is a clergyman.

INFORMATION RELATING TO NORWAY IN FORMER REPORTS.

Subject treated.	Reports of the Commissioner of Education.	
	Year.	Page.
Technical Schools of Norway	1870	442
Report on education by United States consul at Christiania	1871	480-484
Compulsory education; statistics for 1870	1873	CLXVI
Statistics of elementary and higher schools	1874	CXLI
Ambulatory and special schools; the university	1881	CCLXI
Aar og Voss Latin and Realschool	1882-83	CCXXXVI
Middle and sixth class schools; reform movements; school age (7 to 14 in towns, 8 to 14 in rural districts); compulsory education.	1883-84	CCXXIX
Statistics of education	1885-86	730
Population and enrollment; teachers' salaries; coeducation; statistics of elementary schools.	1888-89	76, 340, 464, 1442-1444
Educational system of Norway; school system prior to law of 1889; present status of education; statistics to 1888; finances; supervision and administration; training of teachers; courses of study; school management, organization, methods of discipline; supplementary institutions; memorable dates; statistics of education from kindergarten to university; elementary statistical table.	1889-90	475-517, 551-554, 1672-1677.
Exhibition at Columbian Exposition; statistics of elementary education; chief school officers.	1892-93	1196-2076

HISTORICAL DATA.[1]

1397. Treaty of Calmar, which reunited Norway to Denmark and Sweden.
1527. A definite severing of that union, Norway being left dependent upon Denmark.
1536. Reformation gave first impetus to education, although not creating a systematic public-school system.
1736. Royal decree providing that no children be admitted to confirmation who had not been instructed in the elements of Christianity.
1739. Promulgation of school law, based on this provision.
1741. Modifications requiring the establishment of a school in each district.
1811. Founding of University of Christiania, although not organized until 1824.
1814. (January 14). By treaty of Kiel the King of Denmark ceded Norway to the King of Sweden, but the Norwegian people did not recognize this act and sought for independence.

[1] Larousse: Dictionnaire Universel, v. 11; Udkast til en forandret Ordning af det höiere Skolevæsen: Beretning om Skolevæsenets tilstand; Det kongelige Norske Frederiks Universitets Aarsberetningen; Lois du 20 juin sur l'École Primaire.

1814. Establishment of constitution of Norway, the Storthing first interesting itself in the furthering of educational progress.

1815. Promulgation of a charter (Rikssak) establishing new fundamental laws, the union of the two kingdoms to be indissoluble and irrevocable, without prejudice to the separate government, constitution, and code of laws of either Sweden or Norway.

1821. The title of noble abolished in this most democratic division of Scandinavia.

1824. Organization of the university faculties.

1825. National institute for the education of the deaf and dumb created in Trondhjem; the sign method is used. In 1848 the articulation method is used at Schafftellökken.

1827. Promulgation of school law dividing elementary schools into rural and urban schools, each having its own legislation. It also provides for the establishment of normal schools in the different dioceses.

1848. Law in regard to city schools, regulating the supervision, expenditure, number of schools, obligatory instruction, courses of study, teachers' salaries, etc.

1860. Law in regard to country schools, regulating administration, expenditures, length of school vacations, school age, and also establishing practice schools for teachers in connection with the higher elementary grades. At this date we first read of measures for the education of the blind.

1869 (May 22). Additions to law of 1860, permitting the employment of women teachers in lower grade elementary schools.

1869 (June 17). Law regulating secondary education, the courses of study arranged so as to determine the precise status of the middle schools and gymnasia.

1869 (July 31). Decree fixing course of study for the six normal schools of the different dioceses.

1869 (November 6.) Highest administration of higher public schools conceded to department of ecclesiastical affairs and education.

1870. Regulations for course of study in middle schools issued by department of ecclesiastical affairs.

1873. Law for public elementary schools in rural districts, supplementary to laws of 1860 and 1869, respecting subsidies to school or locality from State or local sources.

1878. Law for public elementary schools in rural districts, supplementary to laws of 1860, 1869, 1873. Includes possible additions to salaries of teachers and assistant teachers from governmental funds. Admits women to graduation examinations from the middle schools.

1881. Law appertaining to elementary schools, supplementary to earlier laws. Creates sufficient number of schools for the instruction of the defective classes.

1884. Law permitting women to enter for the *examen artium* and *examen philosophicum*.

1885 (March 1). Courses of study in secondary schools changed from plan of 1870.

1885 (December 22). The department of ecclesiastical affairs given the power to admit girls as pupils in the public schools providing such admission does not interfere with the instruction or discipline.

1883, 1885, 1886. Decrees concerning admission to the *examen artium* of gymnasia and Realschools, prerequisites of study, place and time of examination, etc.

1889. Law reorganizing elementary education in both urban and rural districts, the appointment of teachers being left to local boards, as also the plan of instruction.

1889 (June 26). Women eligible on school committees in towns and, if they are mothers, may vote for election of school inspectors. In rural communes, if tax payers, they may vote in the district assemblies, which decide upon school affairs, amount of school funds, inspectors, etc. They are also eligible as inspectors.

1890. Commission for reform of secondary schools appointed; the aim to bring about greater concentration of instruction, to stem the tide of overpressure, and to adopt the best reform movements in education. Special investigation is to be made regarding the amount of ancient language study as compared with the need of the modern languages.

1890 (January 18). Law for the protection of children, girls, and women employed in manufactories; children of school age not to be employed during the hours required for instruction nor during the hour immediately preceding such instruction, the employers being obliged to procure certificates from teachers indicating the regular attendance of such children in school; the hours of work to be limited so as not to interfere with the required teaching.

1890 (September 13). Bill, sanctioned by the King, dealing with modifications of the plan of study in secondary grades; more time to be given to modern languages and less to ancient languages.

1892 (July). Formation of Norwegian Elementary Teachers Association at Trondhjem; also of League of Norwegian Philologists and Scientists at Christiania (representing secondary education). Meeting of Pedagogical Society of Christiania, in November, to celebrate Comenius' life and work.

1894. Decree of June 12 places a teacher on the school committee in each city. In towns having thirty or more teachers, both men and women may be on the committee. In smaller towns either a man or woman may be elected to the position.

GENERAL FEATURES OF THE SCHOOL SYSTEM.[1]

The department of ecclesiastical affairs and public instruction (Kirke og Undervisnings Departmentet) has general control of the educational system, and furnishes a report every three years to the King and Storthing. Norway is divided into 77 deaneries, whose ecclesiastical authorities are vested with the higher inspection of schools and the control of school committees. The six dioceses have each a diocesan director and board, to whom the deans report. This directive board (Stiftsdirektion) includes the bishop, the chief county executive officer, and the school inspector, who is appointed by the King and paid by the State. The department of education expects an annual report from these higher school boards. For local supervision, each county has a council which acts as a county school board and meets annually; the chairmen of municipal councils are among its members. A school commission (Skolekommission) in each city or district, which includes as members the pastors and vicars of the parish, a member of the municipal council, and delegates of the communal council, has immediate supervision of schools. Each school district[2] is governed by dual authority, namely, by the school com-

[1] Lois du 26 Juin, 1899, sur l'École primaire; Larousse, Dictionnaire Universel, vol. 11; Beretningen om Skolevaesenets tilstand; Universitets og Skole annaler, etc.

[2] The ordinary school district has limits similar to the municipal district.

mittee, which includes women, and is purely administrative, and by the municipal council having charge of the school fund. Each rural district (Herred) is formed of one or more school communes[1] (Skolekommuner) subdivided into circles (Skolekredse), the size of which is determined by the communal school commission (Skolekommission).

Each circle is required to have an elementary school (Kredskole), or there are ambulatory schools (omgangsskoler) if the distances are too great for the children to come. Formerly there were many ambulatory schools, but by degrees they have been united with the stationary schools.

The different grades of schools include the elementary, divided into stationary (faste skoler) and ambulatory (omgangsskoler) and a higher grade elementary (höiere almueskoler), maintained by several Kredse.

Secondary schools established by the State include middle schools[2] (kommunale Middelskoler) and gymnasia, then there are subdivisions into Latin and real gymnasia (Latin og real skoler). Private schools of a secondary grade (privat borger og pigeskoler) are also reported.

The "Seminaria," or normal schools, are one for each diocese; all public school teachers (folkskolelaerere) are presumed to have passed the normal school examination.

The University at Christiania (Kongelige norske Frederiks Universitet); special schools for philological studies, physical and mathematical studies; mining and forestry schools; industrial (industriskoler) and commercial schools; agricultural schools in most counties; higher agricultural schools (höiere Landboiskole); navigation schools; military high schools; military and naval schools; the polytechnic, etc., complete the school system.

The schools are maintained by district, county, and State funds, the elementary schools being supported by a district school fund derived from interest funds, voluntary gifts, and fines; there are also State subsidies.

The twenty counties have each a school fund to pay the increase of salary to teachers, contributions to higher schools, and to work schools, to erect school houses and to purchase land for school teachers, to promote education in poor parishes, and to further compensate school teachers. City schools are supported by the municipal district; secondary schools are maintained by the municipality or by funds which have accrued to the department of public instruction and ecclesiastical affairs from the sale of church lands.

Sometimes the Latin schools have funds of their own, but the majority depend upon State and municipality. Normal schools are established and maintained by the Government. The university is

[1] A school district averages from 12 to 14 circles.

[2] These intermediate grades serve as a preparatory division to the secondary schools, and correspond in a measure to our grammar schools. Their course is referred to in the following pages.

maintained by the State or by its own funds, the student having no fees to pay. The agricultural schools are supported by State and district funds. For a summarization of the laws prior to 1889, see the Report of the Commissioner of Education for 1889–90, pages 477–481.

The modifications of former laws, apart from the local appointment of teachers and a possible reduction of school hours, were not of an extensive character.

Teachers are generally trained in one of six State normal schools or in a class of minor training schools (Laererskoler), attached to the higher elementary schools as a sort of practice course. Public school teachers are presumed to have passed an examination either in normal schools or elsewhere. The normal course comprises religion, the native tongue, arithmetic, music, geography, history, natural sciences, penmanship, drawing, and gymnastics; there are also practice schools. In city and rural schools, according to law of 1889, teachers can only be employed permanently when 20 years of age at least, speaking the language of the country, and members of the Evangelical Lutheran Church. If not engaged permanently they may be dismissed at the end of three months.

The settlement of teachers' pensions now depends on the local authorities, which pensions are voted as follows: 30 per cent of salary for ten years' service, 40 per cent for twenty years' service, 50 per cent for twenty-five years, 60 per cent for thirty years and upward. The teachers are required to secure annuities of 10 per cent to their widows and 20 per cent in case of an increase of 50 per cent of the teacher's salary before his 45th year.

STATISTICS FOR 1892 COMPARED WITH 1889.[1]

There are two distinct school laws in vogue in Norway, for city and for rural schools.

The context of these laws for 1889 was presented in the Report of the Commissioner for 1889–90, pages 481–486, and the reader is referred to that Report, although points of the law are found throughout this presentation. The statistics available when that essay was published were for 1888. That is the year prior to the promulgation of the law.

Compare them with those of 1892 or the close of the three years' period required for the adoption of that law by the city school authorities. In rural districts a five-year period was allowed.

The results of that law are here presented statistically. It is premised, however, that the effects were supposed to be felt more especially among the teaching fraternity, whose appointments depend on local boards, and in the course of study that of the rural schools being made to subserve the interests of a school population less alert

[1] Beretningen om skolevæsenets tilstand 1889–1892; Lois du 26 juin sur l'école primaire.

than that of the city. The gradations of the rural elementary schools are in two divisions; those of the city in three divisions.

The children of school age in 1889 numbered 318,585, or 16 per cent of the population (of 1880). In 1892 the school population was 356,114, or about 17 per cent of the population of 2,000,917 in 1891.

	1889.	1892.	Increase.	Decrease.
School circles	6,241	6,139	.....	102
I.				
Children of school age in rural districts	225,092	261,230	36,138	.....
Enrolled in stationary schools	208,517	236,161	27,644	.....
Enrolled in ambulatory schools	.....	8,042	.....	.....
Men teaching in rural districts	3,480	3,780	300	.....
Women teaching in rural districts	389	861	472	.....
Number of classes with over 35 pupils	.....	275	.....	.....
II.				
Children of school age in cities	74,830	79,137	4,298	.....
Boys	38,339	39,928	1,589	.....
Girls	36,500	39,209	2,709	.....
Enrolled in schools	52,995	58,871	5,856	.....
Boys	.....	29,999	.....	.....
Girls	.....	28,872	.....	.....
Number of classes:				
For boys	636	1,085	449	.....
For girls	601	1,056	455	.....
For both sexes	387	472	85	.....
Number of classes with over 40 pupils	.....	80	.....	.....
Men teachers having complete position	450	540	90	.....
Women teachers having complete position	687	909	222	.....
III.				
Continuation schools	.....	49	.....	.....
Boys at beginning of the year	.....	595	.....	.....
Girls at beginning of the year	.....	205	.....	.....
Teachers	.....	64	.....	.....
IV.				
Evening schools	.....	42	.....	.....
Boys at beginning of the year	.....	208	.....	.....
Girls at beginning of the year	.....	67	.....	.....
Pupils in Christiania diocese	.....	300	.....	.....
V.				
Higher elementary schools in rural districts (classes)	27	13	.....	14
Number of pupils	443	198	.....	245
Boys	305	134	.....	171
Girls	138	64	.....	74
Within limits of school age	337	159	.....	178
Men teaching: graduates of academy or normal	22	10	.....	12
Men who have not such preparation	.....	.....	.....	.....
Women teachers who have passed examination required by law	5	3	.....	2
Women teachers without such requirement	3	2	.....	1
VI.				
Communal schools, private burgher and girls' schools; also private schools for boys and girls	70	58	.....	12
Classes	359	317	.....	42
Pupils	3,953	3,584	.....	369
Boys	842	749	.....	93
Girls	3,111	3,584	473	.....
Men teaching	162	117	.....	45
Women teaching	274	250	.....	24
VII.				
Public secondary schools, public and communal middle schools, and private higher schools for boys where maturity examinations are permitted.				
Latin gymnasia (classes)	62	57	.....	5
Real gymnasia (classes)	26	29	3	.....
Middle schools (classes)	542	563	21	.....
Preparatory divisions (classes)	157	151	.....	6

	1889.	1892.	Increase.	Decrease.
Public secondary schools, etc.—Continued.				
Pupils of Latin gymnasia	521	406		115
Pupils of Real gymnasia	259	319	60	
Pupils of middle schools	9,588	10,438	850	
Total	10,368	11,163	795	
Of these, girls	3,447	4,281	834	
Pupils in preparatory divisions	2,012	2,881		31
Of these, girls	1,088	1,043		45
Men teaching	656	698	62	
Women teaching	368	387	79	
VIII.				
Normal schools	6	7	1	
Pupils	321	262		59
Pupils from rural districts	207	215		82
Pupils from cities	24	47	23	
Pupils from other dioceses	85	104	19	
Free instruction	132	28		104
Receiving stipends	76	65		11
Teachers with academic training	14			
Teachers with normal school training	12			
Permanent teachers (men)		26		
Permanent teachers (women)		5		
Teachers for hour's lessons		19		
IX.				
The university	1,620	1,366		254

The maintenance of the various grades of schools has been referred to on a previous page, while a complete presentation of the financial basis of the school system is found on pages 488–491 of the Report of the Commissioner for 1889–90. The following table presents the amounts expended, and by whom, for the two years under discussion:

Expenditures in 1889 and 1892.

	1889.		1892.		Increase.		Decrease.	
	Total.	State subsidies.	Total.	State subsidies.	Total.	State.	Total.	State.
I. Lower schools in rural districts:	*Crowns.*	*Crowns.*	*Crowns.*	*Crowns.*	*Crowns.*	*Crowns.*	*Crowns.*	*Crowns.*
1. Rural communes, repairs and construction	2,176,712	13,105	3,646,518	*a* 447,663	1,469,806	434,558	.....	.....
2. Expenditures by the circles (Kredse) in money	83,120	.....	180,096	.....	96,976	.....	.....	.....
3. Expenditures of the Kredse for apparatus, school material, etc.	59,569	.....	84,139	.....	24,570	.....	.....	.....
4. Expenditure from the county-school budget, 743,940 in 1892	499,928	396,139	.....	530,343	.....	134,204	.....	.....
Abatement on account of uncertain income in the small school budgets and comprised in their account, 245,325 in 1892 *b*	.....	.....	408,515	.....	.....	.....	.....	.....
5. Lower grade schools in cities	1,679,035	15,281	2,839,137	*c* 350,494	1,160,102	335,203	.....	.....
6. Higher elementary schools in rural districts	19,116	1,780	10,019	.....	.....	.....	9,097	.....
7. County and evening schools	200,332	152,584	171,374	119,044	.....	.....	34,059	32,940
8. Aid to school teachers, in conformity with law of June 16, 1878, and decree of Storthing June 22, 1880	615,307	615,307	274,513	274,513	.....	.....	340,794	340,794
II. Public secondary schools	789,839	346,761	728,392	347,839	.....	1,009	11,447	.....
III. Communal middle schools	618,972	94,000	638,351	95,000	19,379	1,000	.....	.....
IV. Seminaries (normal schools)	109,306	103,665	135,204	131,338	25,898	27,673	.....	.....
V. Examinations for teachers of common schools	.....	.....	15,253	15,253	.....	.....	.....	.....
VI. Preparatory courses for lower-grade teachers and for entrance to normal schools	.....	.....	10,200	10,200	.....	.....	.....	.....
VII. Training courses for teachers	.....	.....	12,000	12,000	.....	.....	.....	.....
VIII. Courses for improving sloyd teachers, with stipend for the same	.....	.....	25,671	25,671	.....	.....	.....	.....
IX. Courses for teachers of woman's handiwork	.....	.....	2,800	2,800	.....	.....	.....	.....
X. Provisions for extension of Norwegian language among the Lapps and Finns	31,510	31,510	27,936	27,936	.....	.....	3,574	3,574
XI. Stipends for traveling expenses and training courses for teachers	3,500	3,500	15,100	15,100	11,600	11,600	.....	.....
XII. Pensions for teachers and their families	228,194	228,194	252,453	252,453	24,259	24,259	.....	.....
XIII. Expenditures for office of school director	43,654	43,654	42,400	42,400	.....	.....	1,000	1,000
XIV. Education of the defective classes	417,932	226,609	472,447	259,698	54,515	33,089	.....	.....
XV. Art and manual training schools in Christiania	59,729	34,763	74,206	48,854	14,537	14,091	.....	.....
XVI. Industrial schools for girls' work or apprenticeship schools for public service	36,350	36,350	15,450	15,450	.....	.....	20,900	20,900
XVII. Expenditures for examinations for *examen artium* and maturity examinations in secondary schools	21,480	11,000	22,721	12,881	1,241	.....	.....	.....
XVIII. Expenditures for gymnastics and military exercises	2,342	2,342	8,266	8,266	5,924	5,924	.....	.....
XIX. The University	502,745	497,706	627,912	563,663	65,177	65,897	.....	.....
Total *d*	8,311,463	2,901,069	10,881,103	*c* 3,609,300	2,569,640	708,291	.....	.....
	$2,227,472	$777,494	$2,916,135	$967,116	$689,663	$189,622	.....	.....

a Includes 434,149 crowns subsidy in conformity to rural school law.
b Abatement 124,719 crowns in the year 1889.
c Includes 341,700 State subsidy, conforming to city school law.
d In 1889 a State subsidy of 32,330 crowns was given to aid in carrying on schools in communes needing it; also of 14,459 crowns to aid teachers, the purpose of which is not specified.
e That is, of whole amount for schools in 1892 one-third came from Government funds.

OUTCOME OF LAW OF 1889 FROM THE STATISTICAL STANDPOINT.

An increase in enrollment in stationary schools in rural districts is noticed, with a decrease in the number of higher elementary schools, and in pupils attending schools in rural districts.

There is an increase in attendance in city schools of both elementary and secondary grades, while a decrease in the number of and attendance upon communal and higher schools is reported, although the girls in attendance have increased by 473, and in the secondary grades by 834.

Pupils in the lower-grade secondary schools increased and the tendency was toward instruction for practical life (Real schools) rather than to fulfill the requirements of the Latin gymnasia. The latter indicate decrease of 115; the former an increase of 60.

In normal schools the increased attendance of pupils is in the cities. Of the teaching force, an increase of 222 women teachers having full position and of 90 men is indicated.

Both rural and city districts received considerable subsidies from the State for carrying on the lower-grade schools. The increased amount in rural districts was $116,461 from State funds and $89,834 in cities.

Higher elementary schools in rural districts, county and evening schools decreased in number, or were possibly transformed into divisions of other schools, for there is decrease in expenditure. Communal middle schools and normal schools received an increase of funds from State and other sources. Increase in the stipends for traveling expenses and training courses for teachers, also in teachers' pensions is reported.

Art and manual training classes received larger amounts, while in industrial schools for girls, and apprenticeship schools there is a decreased endowment of $5,611. For military and gymnastic exercises the amount of increase is $1,608. University funds are also greatly augmented.

Viewed in toto the increased expenditures in 1892 over 1889 were $689,663, of which $189,622 were from State subsidies.

It is stated that "the number of children in public primary schools of Christiania at the end of the school year 1891–92 was 16,914, there being 547 in private schools of the same standard, of whom 539 were blind, deaf, or feeble-minded. There were 5,084 in private and public secondary schools; 242 received private tuition, and 126, of whom the majority were ill or mentally abnormal, received no instruction at all."[1]

Owing to the provisions of the new law for primary schools, the different school boards fixed the scale of payment for primary teachers. In many towns, especially in Christiania and Bergen, the salaries have been considerably raised.

[1] Journal of Education (London), May, 1892.

In Christiania the salaries of the so-called "second masters," who rank immediately below the school director, and of whom there is one for each school, have been fixed at $938, in addition to free lodging in the school. First-grade teachers receive $643 a year, female teachers only $388.60. Second-grade teachers, male and female, reach the same salary after fifteen years' service, their salary being increased every three years.

Another result of the new law is that a great many more masterships have been created in primary schools, for which, up to the present, there has been no lack of applicants, there having been a considerable surplus of trained teachers for several years.

The inference seems to be as follows: The Government is developing great interest in perfecting the school system; the teachers, both men and women, are to be completely trained to the duties of their position; opportunity is to be given them to study other school systems; training of both mind and body is a prerequisite to modern life, athletic sports being given a prominent place; the rural school problem is slowly being brought into conditions similar to those of the stationary schools of cities; school courses are to be arranged so as to bring about a more natural gravitation from elementary to secondary and higher courses, without too much strain upon the mental and physical development.

COURSES AND METHODS OF STUDY.[1]

Presented in extenso in the Report of the Commissioner of Education for 1889–1890, pages 500–510, the programme of study need not be repeated.

According to law of June 26, 1889, the special branches in city elementary schools are: Lowest division, religious instruction, Norwegian language, history, geography, arithmetic, writing, singing, gymnastic exercises, manual training for girls and boys; a continuation of the same in the second division, with manual training for both boys and girls, natural history, geometry, and drawing. In the highest (third) division, religious instruction, Norwegian language and history, with elementary studies concerning national institutions, natural history with elements of hygiene, arithmetic, and gymnastic exercises, also target practice.

In rural schools—law of 1889—the course includes religious instruction, Norwegian language, arithmetic, writing and singing, with oral instruction preparatory for the higher divisions. In the higher division the same studies; also geography, history, elements of instruction concerning national institutions, natural history, and the elements of hygiene, manual training, and physical exercises with target practice.

[1] Lois du 26 juin, 1889, sur l'école primaire; Udkast til en forandet Ordning af det höiere skolevæsen; Betænkning om Undervisningen i Latin og Græsk-af P. Voss; Vor Ungdom 1890–1895.

As in the city schools, backward children and those of feeble health are exempted from the full course, if the parents request it, and children of dissenters may omit the religious exercises. Special courses may be arranged, if permitted by the communal authorities for children who are incapable of taking the full course, the expense to be defrayed by the parents or guardians.

There may be optional courses in the higher division, but additional hours will be required and not more than six additional weeks a year are allowed. The studies are those of the elementary grades or similar ones. The duration of the continuation schools may be from one to six months.

In Norway, between the people's schools and gymnasia, there is an intermediate grade of school, the sixth-class middle school[1], based on a law of June, 1869, which aims to prepare for the gymnasia, and also to give a general education for practical life. There is an entrance examination, which has only been permissible to children who are fully 9 years of age, but, if suggestions of the Royal Commission be adopted, a change to 11 years of age may be made.

The secondary schools—Latin and real-gymnasia—endeavored to give a broader phase of education to the students, two-thirds of whom were Latin gymnasiasts and one-third real-gymnasiasts.

It is stated that—

The Royal Commission for Reform Movements in Secondary Schools has suggested a scheme for their better organization. In conformity with the express wish of the Storthing, secondary schools are in future to be a continuation of the elementary grades, and children are to receive elementary instruction till their eleventh year. As at present, secondary schools are to be divided into two divisions—middle schools and gymnasia. But while the pupil now enters the middle school at the age of 9 and remains there for six years, the new curriculum is to cover four years (from the eleventh to the fifteenth), that of the gymnasium extending, as now, from the fifteenth to the eighteenth. The Real-gymnasium is to undergo many alterations, but the Latin gymnasium is to be divided into two parallel divisions, with and without Greek. The requirements in Latin and mathematics are to be considerably reduced, while the native language, modern

[1] Class	I.	II.	III.	IV.	V.	VI.
Age	9	10	11	12	13	R. L. 14.
Religion	3	3	3	2	2	2
Norwegian	8	5	5	4	3	3
German	.....	6	5	4	.....	.....
English	.....	.....	.....	.....	.....	.....
Latin	.....	.....	.....	.....	.....	.....
History	3	3	4	3	3	3
Geography	4	2	2	2	2	2
Natural sciences	.....	2	2	2	2	2
Mathematics	4	4	5	6	5	6
Drawing	.....	2	2	.....	.....	.....
Writing	4	3	2	.....	.....	.....
Total	26	30	30	30	30	30

With Class IV comes a subdivision into English (or Real) and Latin courses. In Classes V and VI German is studied for four hours in the Real and three in the Latin division; in Classes IV, V, and VI English is studied for five hours in the Real course, and Latin for seven hours in the Latin subdivision; in Class IV the Real-course drawing is studied two hours, and in Classes V and VI of the Latin course one hour each.

languages, geography, physics, and drawing are to receive much greater attention, and slöjd is to be made compulsory throughout the course of the middle school. This scheme was sent to the University of Christiania and to all public secondary schools, with the request that the professors and teachers comment upon it before the end of the year (1891) to the department of public instruction. The commission states that ancient languages take more time than necessary, that in middle schools there are too many subjects of instruction, and it requests a new gradation of studies.[1]

The university courses are liberal in character. For admission as a student, it is necessary to have passed the examen artium. Most of the candidates come from gymnasia and Real-schools, and are supposed to have a certificate from middle schools. The examining board, consisting of university professors, distinguishes between the "classiske examen artium" and the "real-artium," the latter being sufficient for those who intend following a course in mathematical, physical, and natural sciences; the former is required of those who enter the other faculties. There are five faculties; the faculty of philosophy has two divisions—that of historical and philosophical sciences and that of mathematical and natural sciences, the others being theology, law, and medicine. The length of course is six years in medicine, four in each of the other faculties. The courses of study in agricultural, military, technical, and industrial schools are not presented, but there are theoretical and practical courses aiming to produce a self-respecting and self-reliant people.

The blind and deaf mutes receive elementary instruction, and also education in certain trades. Defective children are tenderly cared for and, when possible, educated, the powers of observation being trained; the æsthetic side is cultivated through pictures, festivals, etc. They have practical gymnastic exercises.

Methods of study and recitations are as follows: The law implies that fifty or at most fifty-five minutes is long enough for the first recitations, and forty-five or forty minutes for later recitations. Recesses are interspersed with gymnastic exercises and singing.

The school is to be opened and closed with prayer, reading of Psalms or singing. The text-books are to contain nothing contrary to law, and no religious text-books can be employed other than those approved by the King. Instruction is to be given in the Norwegian language, although in the Tromsöe district[2] text-books in the Lapp and Finnish tongues may be used with those in the Norwegian language.

Promotion takes place from class to class and from grade to grade, after due examination, which occurs annually in the presence of the school committee, the parish clergyman, and other persons. All

[1] Journal of Education (London), May, 1892.

[2] In Finmark, on the island of Tromsöe, where the Lapp and Finnish tongues prevail.

children over 9 years of age are expected to take part whether they receive home instruction or attend public or private schools.

Pupils usually decide when in the middle-grade schools whether they intend to enter the Real-school or to follow the gymnasial course which prepares for the university, although pupils from both real-school and gymnasia are admitted to university faculties.

Saturday is a holiday; on other days not over six hours in school are allowable, and for fear of overpressure the commission studying this matter considers five hours enough for girls.

Three recesses are usually taken, two of ten minutes each and one of twenty minutes. Holidays and vacations cover twelve weeks annually, although they may be extended to sixteen weeks in cities, if the authorities so decide.

TEACHERS' ASSOCIATIONS.[1]

In July, 1892, at a well-attended meeting at Trondhjem, there was formed the first union of Norwegian elementary teachers. In the same month representatives of secondary and higher schools met in Christiania and formed the League of Norwegian Philologists and Scientists, the object of which is to promote the economic and social interests of the masters. The managing committee consists of seven persons, three of whom are chosen from among teachers of provincial schools. Only graduates of philology and science are strictly entitled to membership, though the committee has the power of admitting such nongraduates as hold appointments in secondary schools. A meeting is to be held at least once in three years, and in the meantime the committee informs the members by circular of matters of general interest. The league is to be the organ of teachers of secondary schools, and has already on two occasions sent in a protest to the department of public instruction against the appointment of principal teachers not possessing such qualifications as have previously been declared essential by the department itself.

On the 15th of November the Pedagogical Society of Christiania held a Comenius festival, the day of his death having been selected instead of that of his birth, as the latter occurred during vacation. Among the numerous guests were the prime minister, the minister and ex-minister of public instruction, and other distinguished people. Mr. Anderson, principal of a private secondary school in Christiania, delivered the chief discourse. He gave a summary of Comenius's life and work, declared it to be one of his chief merits to have placed higher instruction on a national basis, and pointed out how we, three centuries after, have not yet realized, far less distanced, his educational ideals. In conclusion he said:

There is scarcely a pedagogic truth or didatic rule of the present day upon which

[1] Vor Ungdom, 1893-1895; Revue Internationale de l' Enseignement, 15 Décembre, 1893; Journal of Education (London), April 1, 1893, page 203.

Comenius has not expressed an opinion, so full of vitality were his ideas, and therefore so profitable. To press steadily forward, that alone is the way to honor his memory.

The Rev. Mr. Romer, of the United Brethren, next delivered a lecture on "Comenius's Ecclesiastical Career," suggesting that his profession might possibly have had its share in making him the great pedagogue that he was. He then gave a very interesting elucidation of the growth of the United Brethren and of Comenius's life as a teacher, clergyman, and bishop.

PHYSICAL TRAINING IN NORWAY.[1]

The movement in favor of physical education, which has extended all over Europe, had special development in Norway. It commenced in the hospitals, in councils of revision, in statistical lectures on medical subjects. The effort was made through scientific and hygienic investigation to train children physically.

The physicians have undertaken the medical supervision of generations to come. The Government intended to order the examination of all school children in Norway, but the gathering together of facts was commenced in the public and people's schools. Papers were prepared for each school, so that the answers of each pupil to questions similar to the following could be compiled:

What are the hours of recreation, of class recitation, for singing and gymnastics? How many hours a day must the pupil work at home in order to prepare the lessons indicated by the teacher? The size, weight, and height of pupil? Is he afflicted with nervous diseases, headaches, bleeding at the nose? Has he lung troubles, scrofula? Is he anæmic? Has he curvature of the spine, etc.?

The hygienic conditions of the school; the health of parents; the general appearance of the pupil; age of father and mother; what are the hygienic conditions of the home? Are the maladies with which the children are afflicted due to home or school surroundings?

In August, 1892, some 2,000 children (one-third girls) had submitted to these investigations, each one having been before the board of inspection three times, so that fairly correct records could be kept. Many considered these examinations to be an encroachment upon individual liberty, and in most cases the requests were handed to the family physician. Sometimes the answers regarding the health of parents, etc., were omitted, but the answers were such that it was possible to obtain information concerning the effects of hereditary and school influences upon the young Norwegians.

Deplorable hygienic conditions were found. The long winters, when windows were not open to admit the air, the conditions of drainage, the horrors of alcoholism, all were investigated.

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[1] Condensed from article by Hugues de Roux in Revue Pédagogique, août, 1895, pages 143–155.

It is stated that physical training in these northern countries has been of such a character that it fortified and hardened the child, so that, for instance, if he were stranded on a desert island he might be prepared for such emergency.

Exercise with the "ski," or snowshoe, is in vogue instead of skating, and frequently a hundred kilometers can be covered in twelve hours.

Even the dance is not a mere desultory pleasurable movement, but becomes a violent exercise with the Norwegians. The whole training of the child is toward self-reliance. Some idea of this training may be obtained from the fact that a child of 8 and one of 4 years may be out driving; the vehicle is overturned; they unharness the pony, lift the cart, mend the break, and start off again. Such is the practical kind of training that is given even to the youngest members of the family circle.

The present movement is to more thoroughly elucidate modern ideas of physical culture, which tend to form an athletic body of people, and this movement is watched with interest, as it is conceded that the Scandinavians have degenerated physically when compared with past periods of history, when, in point of corporal strength, they were recognized as the masters of Europe (les maïtres de l'Europe).

One of the sources of this physical degeneration is said to be the lack of properly prepared food, and the northern races have suffered from this cause. So neglected has this branch of domestic service become that of late years classes in cooking have been established in most of the schools. Each girl in the elementary grades is given a sum of money by the mistress to buy what would be required for a meal. In addition to a practical display of the instruction given, her accounts are rendered on the blackboard, and thus serve as an arithmetic lesson for the whole school. Through experience the girls learn where the little economies come in from day to day. Girls of good families go into the cooking schools to be instructed in domestic economy.

The practical good sense demonstrated by the parents in thus giving their daughters, no matter what their class of society, an opportunity to thoroughly train themselves in the art of cooking is indicated. It has been said that the taste for stimulants[1] has been greatly enhanced by the lack of nutritious food, hence this branch of teaching in elementary grades tends toward preparing a home table so tasteful in quality that even the need of going to a general "Damp-Kjøkken," for sundry nutritious foods will be no longer felt, and little by little the cause of alcoholism will be pushed farther away until the people

[1] In 1833 statistics assigned to each Norwegian (women and children included) 16 quarts of brandy per capita per year, and this was simply an average. In 1875 the figures had decreased to 6 quarts and a fraction, but the evil aggravated by heredity had taken deep root amongst the people of that cold climate. (Revue Pédagogique, août 1895, p. 146.)

again stand before the world as a hardy, strong race, with no indications of the possible degeneration of physical force which some writers indicate to be their normal condition.

COEDUCATION AND THE TRANSITION PERIOD.

An interesting report on the coeducational movement was presented in 1895 to the minister of ecclesiastical affairs and public instruction of Norway by Hulda Hansen.[1] A condensation of that report is here presented, as it clearly indicates the trend of modern educational movements in Norway.

The Norwegian school system is for the time being in a transition state. The people's school is a communal school, the higher grade schools are in part communal, in part public,[2] and they embrace the following divisions: A preparatory division (three classes), a middle school (six classes), and a gymnasium (three classes), which has Real and Latin sections. As in the other Scandinavian lands, Norway arranged its schools, from the Reformation period on, upon the basis that boys were to be trained for citizenship while a girl's life was centered in the home and family. The schools for boys carried on their education from childhood to manhood, while, as a rule, the instruction of girls was limited to the most elementary branches. In course of time girls demanded a higher grade of education, or at least such as could be obtained in the grammar or "middelskole." In 1877 the principal of a private school for girls presented a request to the department of education for the promulgation of a law permitting middle school examinations for girls. At that date it was considered by the authorities that such action would bring the education of girls outside the woman's sphere.

However, in 1884 the Storthing decided more advantageously for woman and the authorities of several communes requested a State subsidy to carry on a grammar (middelskole) school of a coeducational character. From that date on the discussions in the Storthing and among the educational authorities being quite earnest in character, it was decided not to put any hindrance in the way of coeducation in communal, middle, or State schools. The coeducational schools render a more complete class division possible and more extended instruction for both sexes.

The local school officials have interested themselves in the matter. In the smallest towns, where economic conditions have to be considered, the authorities have proven the value of each step, new methods have been tried and the authorities have cast aside whatever did not produce good results, and they have introduced as a part of the system whatever seemed most satisfactory. These experiments rendered it possible for Mr. Knudsen, the chief official of the Norwegian school

[1] Vor Ungdom, Haefte 1-2, 1895: Résumé of report to the minister of public instruction and ecclesiastical affairs, by Hulda Hansen.

[2] Governmental or State schools.

system, to arrange that there should be no absolute uniformity in methods, but that the best be chosen. The central authorities have observed these different efforts and have adopted whatever seemed best for the whole school system.

As an outcome of these investigations, coeducation was introduced into a private school in Christiania, into some of the public Latin schools, and into twenty communal schools; also in several private high-grade schools in Christiania, where young girls are studying for the gymnasia, and in the highest class of middle schools in places where for the time being there are no girls' schools of this grade.

Many educators have interested themselves in the last few years in reforms in higher and lower schools for girls, and it is thoroughly understood that the schools have claims which should receive attention. Both boys and girls have a right to expect aid from the State in obtaining a classical education. In that respect there is unity of sentiment. Some individuals take the ground that it is preferable to have the education go on in the old way, others discussed economic and moral phases.

As for the intellectual side, coeducation has shown very clearly that a girl's intelligence is fully equal to that of a boy. Special aptitude for language has been noticed among girls in some schools but less aptitude for physics and mathematics; in other schools the reverse is the case. To date, more girls are found in the Real gymnasia than in the Latin gymnasia, for as yet girls are apprehensive as to the outcome of the study of mathematics and natural sciences. While it is observed that they are especially studious, yet they have less confidence than boys. Their industry has a good effect, however, upon the boys, and, in studying together, more rational methods of study are noticeable. Of course there is a difference in individuals, but there is no hindrance to the giving an equally thorough education to both.

There is said to be danger that girls will exert every faculty for little purpose, because they are outnumbered by the boys, but these proportions will equalize themselves gradually.

The following figures are presented in various years at middle-school examinations:

Year.	Boys.	Girls.	Year.	Boys.	Girls.
1890	793	315	1892	850	401
1891	863	359	1893	953	450

For the examen artium the figures were as follows:

Years.	Students.	Of these, girls.	Years.	Students.	Of these, girls.
1889	268	14	1892	255	16
1890	249	16	1893	213	9
1891	236	12			

If, then, coeducation is permissible from the intellectual side, there is still another side—the moral—and teachers admit that there seems to be no bad influence in thus educating boys and girls together. A species of cameraderie is engendered by this mingling day by day in school; courtesy is as apparent in the school as elsewhere. The presence of boys does not tend to produce coarseness among the girls, but their presence has a refining home influence upon the boys.

In 1890 the department of education and ecclesiastical affairs requested a report from institutions which had tried coeducation, so as to determine upon the merits or demerits of the system. No school demanded its abolishment, but each school indicated that such form of education is more economical, and from the pedagogical standpoint is warrantable.

The general complaint has been that teachers are not thoroughly trained to carry on coeducational establishments; but the school authorities are strenuously endeavoring to improve this condition of affairs. A drawback to the coeducational middle-grade schools has been the seven-year course for girls and the six-year course for boys. The health of the girls was found to be so excellent that it seemed desirable to do away with the upper class for girls and to allow the boys and girls to pursue their studies throughout the course together, and to arrange the middle-school examinations in accordance with this plan.

The investigations concerning coeducational schools proved that girls suffered more than boys when the hygienic conditions were not satisfactory; that they have less power of resistance than boys when epidemics break out, and that overpressure of work has more lasting effect upon the organism of girls than upon boys. In the Latin and real coeducational schools of Frau Roque Mielsen the thirty hours of school work are similar for both boys and girls. There is a separate upper class for girls who desire to continue a course of study leading to the middle-school examination, or, if the girls prefer, they enter the sixth class with the boys. Domestic economy and feminine handiwork enter into the course for girls. In the middle-grade schools it is not considered advisable to limit the mathematical course or to supplant it with work of more interest to women.

The number of hours per week is thirty (boys have thirty-four hours), and slöjd, gymnastics, and singing are included for all.

According to Royal decree of February 23, 1889, two higher schools[1] for girls have a right to hold the middle-school examination. In some of the schools the examinations take place after the ninth year. In the tenth class the course of study is as follows: Norwegian, French, English, and German, two hours each; arithmetic, four hours; phys-

[1] Those of the Misses Wolfsberg and Bordaes in Drammen and of Miss Storm in Trondhjem.

ics, chemistry, dietetics, and domestic economy, six hours; history and manual training, two hours each; singing, one hour.

The girls' schools have good hygienic arrangements; the maximum in a class is 30; in the schools from 200 to 300 pupils; annual school fees from 50 to 200 or 240 crowns ($13.40 to $53.60 or $64.32), which is similar to the private higher schools for boys. In proof of the fact that higher-grade study is not detrimental to the health of girls, it is stated that in the higher-grade schools (coeducational or separate) of 1,500 girls none had curvature of the spine in a degree which required support. Arrangements are made so that students can have warm milk or chocolate if they prefer for lunch at school rather than to return home. In the normal schools of Norway, four of which are city normals, coeducation is a pronounced success. In the Asker normal school, 2 miles from Christiania, there are 18 men and 32 women students. In gymnastics and manual training separate instruction is given. There are two years allowed for finishing the course, but the practice years bring the courses up to six years.

In Norway women teachers have a significant place in school work; in schools for girls and coeducational schools they teach even in the highest classes, and their worth is especially noticeable in the people's schools. The need of a higher normal school for women is greatly felt. In order to perfect women in special branches for the higher grade schools a private normal school was established by School Director Berg in Christiania. To be admitted to the first division of this school the passing of the middle school examination is requisite.[1] In this lowest division there is freedom of choice in studies. To enter the second division the examen artium is necessary, or a successful course in the first division, or several years practice as teacher (which would indicate satisfactory knowledge). From this division one may select course A, B, or C.[2]

The outcome of the interest in coeducation and the strong democratic movements rise to modification of higher school work.

In 1890 a royal commission was appointed to revise regulations governing the higher schools.

The question of the organic connection between the people's school and the higher school is emphasized by the commission, a completion

[1] This middle school, or intermediate grade, has six classes, and leads generally to the gymnasia or Real gymnasia. The course of instruction covers religion, mother tongue, history, geography, arithmetic, and writing; the second half year, German; one term later, natural sciences and drawing; a year later, geometry. With the fourth year the pupil chooses whether he will follow the Latin or English course; the former leads to the gymnasia, the latter is equivalent in part to the courses leading to Real-schools, Real-gymnasia, etc. French begins with the fifth year, but it is optional.

[2] A: Religion, Norwegian, history, geography. B: Norwegian, English, German, or a reasonable amount of French. C: Physics, chemistry, natural history, mathematics, and arithmetic.

of the common-school course being recognized as necessary preparation for the higher schools; the commission also stated that foreign languages could be put aside two years or more to some higher division. Certain members considered that the foreign languages should be transferred to the middle school course (from 11 years on), while the minority considered that such transfer would satisfy the great number of pupils who do not aim to enter the gymnasia.

The commission considered eighteen hours to be sufficient for study of the mother tongue in four classes of the middle schools (that course has taken from twelve to thirteen hours in the three years' gymnasium). Of the foreign languages, the lowest class in the middle school has German only, and English or Latin may be taken up thereafter; the minority advanced good reasons for taking up English rather than German; forty hours is devoted to Latin, to Greek twelve (it was proposed, as an exception, to have a three years' Greek course of twenty hours, the Christiania Cathedral school being the objective point of such suggestion). Different views were held in regard to Latin; School Director P. Voss said for sake of discipline there should be at least thirty hours of Latin reading in the gymnasia.

The commission advocated the need of practical arithmetic, and in natural sciences, the need of more familiarity with the book of nature. Some believed that chemistry and physics come more aptly within the circle of a child's knowledge; others place the principle of sanitation and health first.

There are therefore no new problems respecting the advancement in physics, but the tendency is to reduce the number of daily lessons; to have a new division of the courses and of the examinations; to give more stress to athletic exercises, and to approximate slöjd and gymnastic exercises. All suggestions lead to middle school examinations and the artium.

For girls' higher schools, girls' schools and coeducational institutions, the commission suggests distinct programmes of study. The minority decided for complete coeducation as a part of the State school system, and all considered that experience favored coeducation. The commission favored similar appointment for men and women in communal and public high schools.

The minority suggested the giving women teachers an examination of the second grade, which would prove their qualifications for a two or three years' course in university studies.

CHAPTER V.

EDUCATION IN CENTRAL EUROPE.

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REVIEW OF EDUCATIONAL CURRENTS OF THOUGHT IN 1895 IN CENTRAL EUROPE.

Since the death of Kehr in Halberstadt, Dittes in Vienna, and other educational leaders in central Europe, other men occupying commanding positions have taken up their work, and in the German National Teachers' Association and the educational press defend the idea of popular education, and particularly the plans and principles of Pestalozzi. Mr. H. Scherer, school inspector in Worms, is now regarded as one of the prominent leaders of the German teachers, hence it would seem proper to quote him on the subject of educational currents in Germany. The article which is here inserted in English translation is the leading article of Richter's "Pädagogischer Jahresbericht" of 1895. It must be understood that there is much more scientific discussion on educational systems in Germany than is generally known, chiefly caused by the prominence Herbart's theories have attained. The outspoken defenders of Pestalozzi, as was seen in the article, "Is German pedagogy in a state of decomposition?" published in the Annual Report of the Commissioner of Education of 1893–94, are apprehensive of seeing Pestalozzi's influence supplanted by that of Herbart. Scherer represents Pestalozzi and that school which was founded on his principles, while Rein, to whom he naturally turns first, defends and advocates the pedagogy of Herbart and his disciples. The article of Scherer is as follows:

Test all, keep the good, and should anything better mature within you, add it in the spirit of love and truth to what I have tried to give you in the same spirit; at least, do not cast aside all my life's efforts as something that is done and needs no further test. Truly, my work is unfinished and needs serious examination, and not merely because I request it.

With these words, the past master of German school pedagogy and German public education, Father Pestalozzi, closed his last work, his swan's song. It is his last will, his pedagogical legacy to his successors; Harnisch and Diesterweg, Herbart and Beneke, Ziller and Dittes, Dörpfeld and Kehr, and many other learned men and teachers have worked at its fulfillment. Still their labor goes on, and yet the work is unfinished. The one hundred and fiftieth anniversary of the master's birthday invites everyone who is working to carry out his will, in developing the theory and practice of education according to the sense and spirit of the master, to examine all that has been accomplished in the fulfillment of Pestalozzi's pedagogical testament, and to see what task is set before the teachers of our time in regard to the further development of the science and art of pedagogy in the sense and spirit of Pestalozzi.

Pestalozzi invites us to an earnest test of his principles, so that the transient may be separated from the lasting, the accidental from the essential, that the former may be set aside and the latter developed toward ultimate perfection. This test is necessary for a firm foundation of the science of education and art of teaching; for, despite his genial and tolerant nature, Pestalozzi was a man with human faults and weaknesses. As a product of his time, his development, the formation of his views of life and the world, and hence also his educational opinions, were influenced by the spirit, science, art, and philsophy of his time.

In studying the advancement of the science of education we must first of all learn to know the history of pedagogical development in its connection with the development of culture and intellectual life, and understand the development itself in this sense; for, as intellectual movements that have once become powerful and influential never die out, but continue to affect future generations in some way, the thought and action of the present time is to be understood only by a study of the past. The formations of the present are determined by those of the past.

If pedagogy is more than a systematically arranged body of rules for school education; if it is a science and an art which by conclusive tests gives us a theory of art founded firmly on science (by means of which an intentional and regular education of mankind, according to both nature and civilization, is made possible), it must be studied from this point of view. If education is more than an intentional and well-planned directive action, which makes the individual attain a natural and civilizing development; if education also strives to make the individual a member of the social body, it must be regarded as a science and history of development which stands in closest connection with that of social culture and national intellectual life—which life reacts upon education and influences the formation of educational systems.

Twenty years have passed since the appearance of the last edition of Dr. Karl Schmidt's Geschichte der Pädagogik in weltgeschichtlicher Entwicklung und im organischen Zusammenhange mit dem Kulturleben der Völker. Since that time much has been contributed to this subject, and we do not think that Professor Rein is justified in saying in his introduction to his Encyklopädisches Handbuch der Pädagogik that—

> In the province of historical pedagogy we are just at the beginning of scientific work. First the earliest references must be looked up and sifted, then written up in monographs in which the intellectual movements of the period in question are brought out, before a well-founded scientific condensation of facts can be effected.

The same remarks apply to every scientific, especially to every historic, condensation of facts. In every case the condensation will be the more successful the more carefully and completely the sources of information have been examined. In the history of pedagogy, as applied to elementary education and to public-school systems, much has been done in the last twenty-five years, particularly in regard to research and the examination and revision of early references. Classic works of educators of the past have been published anew as original sources, the matters contained in them having been sifted and the essential and valuable separated from the accidental and worthless, and the authors' place with reference to the social culture and intellectual life of their times has been defined by prefacing their works by fitting introductions. The publication of school regulations, statutes

and histories of separate States and cities, has finally furnished the material for an almost complete history of schools.

There are still many deficiencies, it is true. Much work remains to be done, and many a valuable source of information must be made accessible. On the other hand, in some cases the mark has been overreached and many worthless rocks have been dug up instead of ore, owing to the religious bias of the compilers. A careful separation of the valuable and essential from the worthless and accidental is positively necessary. In this case scientific and not religious considerations must decide.

With the aid of these early references of pedagogy and the history of schools, in connection with the history of social culture and intellectual life, our time can produce a comprehensive work on the history of educational development and school systems in which the causal connection between social culture, or intellectual life, and pedagogical theory and practice is clearly and definitely set forth. The history of civilization, therefore, becomes auxiliary to pedagogy.

"Science and schools," says Professor Faulmann, in his History of Sciences, "have challenged each other; science gives to schools better matters and better teachers. Schools give to science better disciples. This examination of pedagogy brings us to a clear perception of the fact that educational development is a distinct branch of the development in general of all social culture, and that it is intimately associated with the philosophical views of life and the universe. Parallel with these changes, ramifications, and the expansion of philosophical views during the course of centuries the problem of education has been differently understood during different periods, and different solutions have been advanced."[1]

Only when the history of pedagogy begins to deal with the facts underlying theory and practice in connection with the intellectual movements and currents that give direction to educational activity can the historian of pedagogy give a true idea of its development; then alone can he judge individuals, thought, and separate facts from the standpoint of the civilization of the time; then alone can he judge the master, together with his disciples and antagonists, during and after his time; then, and then alone, can we understand the pedagogical phenomena of the present and comprehend them in their origin and development; only then can pedagogical science render its best service to pedagogical practice, to the educator and teacher.

"When it shows the teacher," says Professor Ziegler in his History of Pedagogy, "how deeply rooted are the regulations which he must carry out, and that they are most intimately connected with the culture of his nation, he will reverence them and interpret them correctly. He thus learns that they can not be set aside or changed at the option of any one individual, be he the mightiest in the land, and that their arbitrary violation or sudden change can not take place without great detriment to the whole system."

From such a presentation of the history of educational development we shall clearly recognize, on the one hand, that many a thought comes to light in the changes of theories and methods at present as altogether new, whereas they have been presented before and have not stood the practical test, because they were intrinsically wrong or, perhaps, the time was not ripe or not fully prepared for their comprehension and practical application, or perhaps these ideas failed owing to the obstacles put in their way by the animosity and jealousy of favored cotemporaries, who either saw their position endangered by a new doctrine which they failed to understand or practically carry out, or because they feared to be aroused from a sweet, dreamy existence.

[1] Sieler: "Fichte's views on pedagogy as applied to public schools."

On the other hand, we also recognize that every civilization is governed by an evolutionary development from the imperfect toward the perfect; that, therefore, all our views on education and teaching and school systems are subject to constant change for the better. It is a sign of a want of historical understanding to suppose that any man, be he Herbart or Pestalozzi, Ziller or Diesterweg, Dörpfeld or Dittes, has framed something totally new, the highest and best for all times, and beyond which there is no progress possible.

The intellectual greatness of a man consists in his understanding more clearly than others the moving powers of the intellectual progress of his time and in collecting these powers within himself, and being thereby enabled to define or change their direction by his own strength of mind in so far as it is possible within the line of the popular will.

True pedagogy is progressive pedagogy, which advances with the development of social culture and intellectual life.

Should we find that once again a period has become "old" and that a new one draws near, we can not in consequence conceal the fact that this new period will manifest other needs, will define other aims for their satisfaction, and will seek and devise other means for the attainment of these aims. However, this thought will not depress us. We shall try to understand it, and do our duty with a certain resignation during the unfavorable transition period. In the service of the old, but with knowledge of the direction that points out the new to be followed, let us resolve upon vindicating what exists, but not restrict ourselves to it because it has been tried and still exists; for, truly, all that is, is not within reason, and not all that is, deserves to be counted worthy to be. (Professor Ziegler.)

Such a history of pedagogical development leads us up to present times, consequently acquaints us with the present currents, with present aspiration and actual work in the field of pedagogy and its auxiliary sciences. The farther we are away from the civilization and intellectual life of the past, or the looser its causal connection is with the civilization of the present, the less consideration will be given to its pedagogy and school systems. On the other hand, the nearer we approach the present, and the more organically civilization and intellectual life, including its pedagogy and school systems, are connected with the phenomena of our times, the more minutely must we observe these phenomena. Therefore the entire civilization and intellectual life of pedagogy and school of the present century, which begins with the appearance of Kant, Goethe, Schiller, and Pestalozzi, will receive the greater part of our attention.

The present duty of pedagogy, as a science and an art, is to perfect this history of educational development on every side to the present day, to frame a system of education based on this fundamental work, and to molding the education and teaching of our times. In this work we are supported by all who are occupied with the construction and development of the fundamental and auxiliary sciences of pedagogy. To these belong all the sciences, for they all bear some relation to education. They acquaint us either with the object, end, and course, or with the conditions and means of a natural and scientific education and culture. The histories of philosophy and anthropology, dietetics, logic, and ethics belong to the fundamental sciences of pedagogy, which acquaint us with the object, end, and course of education and culture.

Anthropology investigates the ground in which the foundation is laid; dietetics, logic, and ethics define the structure that is to be reared. The fundamental sciences have risen during the second half of the present century, and their rise must influence pedagogy even unto further future development. This rise is also traceable to the

rise of natural philosophy, brought about particularly by Darwin and his disciples, which influenced physiology and indirectly psychology. As man is a distinct form in the evolution of organic life, so body and soul are endowed with evolutionary powers which man has the ability to understand. Furthermore, it can not be denied that, within certain limits, the soul-life of a child develops in an analogous manner to the soul-life of the animal, and that the only difference between the development of man and animals lies in the tempo and degree of later realizations of the acts of memory.

In the beginning, and particularly by Moleschott and kindred writers, the results of investigation in natural philosophy and physiology were made to subserve the materialism born of the meager idealism of Hegel's philosophy; soon after, however, Lotze, Fechner, and others, quoted them in support of purely idealistic philosophy. Actually, scientific psychological investigation was begun by Herbart and Beneke by the establishment of a system of psychology in which the old theory of "faculties of the mind" found no place. Both have shown the course which this science must pursue to be successful in further expansion. This course can not merely be a collection of observations, but must frame laws by which psychological occurrences can be explained. But we must not forget that the psychology of Herbart, based as it is upon metaphysics and governed by laws founded only on mathematics, modified by the philosophy and science of his time, has a tendency to be one-sided and fragmentary, so that, to-day, it can no longer be accepted as the scientific psychology which meets the demands of our time. "We can hardly consent now to the proposition that psychology must rest on mathematics." (Heinrich, in "Die moderne physiologische Psychologie.")

On the other hand, psychological laws can not be developed from mental phenomena, purely as such.

Efforts have proved that it is impossible to establish a system which from the very beginning developed from psychological principles alone and in conformity with psychological laws. There can be no laws which may be defined as unqualified psychological laws, or for which there can be any other foundation than the physiological action in the human nervous system. (Heinrich: "Die moderne physiologische Psychologie.")

Natural science, and particularly physiology, must furnish the foundation for psychology. From them, and not from metaphysics and mathematics, as a basis, psychological laws must arise. Beneke already pursued this course in psychological investigation and thus constructed a psychology which meets the present demands of scientific investigation much better than that of Herbart. However, in this case also, owing to the prevailing philosophy and science of his time, metaphysical speculations play an important rôle in Beneke's psychology, and interfere with its advancement in conjunction with the progress of natural science and the philosophy of our times. The all-powerful influence of the then prevailing philosophy, under which Beneke fought his battle for existence, prevented the development of his psychology, if it is possible for a finished system to develop. The rapid growth of natural science in late years, combined with the great impetus of discoveries of facts and methods has infused new life into philosophy and more especially into psychology and ethics. The labors in the field of physiology particularly exerted a direct influence on psychology.

We have already mentioned Lotze as breaking the way for modern purely ideal philosophy, in which physiological investigation becomes

more and more independent of metaphysical speculation and brings new facts constantly to light and endeavors to approach nearer the first cause of psychological phenomena and laws with the help of physiology. Physiological psychology, which makes use of experiments in its investigations and looks up, establishes, and fixes its laws according to scientific methods, offers the firmest foundation possible. Wundt, Ziehen and Külpe, after Lotze, have been actively engaged in the development of this psychology. They justify real and ideal demands, show the reciprocal action between the physical and psychical, and at the same time observe the relative independence of each of the two sciences. They base their laws upon the results of experiments and not upon metaphysical speculation, and do not prevent the philosophical condensation of acquired cognition into a finished system. That which is to be desired has not been attained throughout. That many errors are interspersed, many omissions to be supplied, and many problems yet to be solved, no one will dispute. Neither can it be denied that in the zeal of scientific investigation, and under pressure of one-sided idealism, and its resultant one-sided realism, the normal mark was overreached and the structure in its foundation was supposed to be complete.

To completely displace and supplant the earlier method of self-observation by the experimental method is certainly an erroneous procedure. But this overvaluation has already been recognized, and the "subjective linguistic method," dependent upon observation of self and others, has received due consideration in connection with the experimental "psycho-physical method," so that it is reasonable to hope that a complete and true idea of the development of the human soul may yet be obtained. In this way we shall arrive at a psychology which derives its laws from material experimentally acquired without regard to metaphysical presuppositions, as these observations essentially refer to the same individual, and every report of an observation is immediately controlled by many. The resulting laws are, in consequence, incontrovertible. The hypotheses, still necessary for the uninterrupted development of this psychology, do not directly affect the laws acquired; they are of importance to the psychological investigator only, and not to the practical educator, for whom psychology is only an auxiliary science.

Pedagogy has a large interest in the establishment of such a psychology, so that it may receive a firm foundation and become a science in the true sense of the term, treating of the intellectual development of the child and of the art and manner of taking hold of his development with clearly understood purpose and well-defined regularity and directing it, mainly by instruction, toward its ethical end. But even at the present day empiric physiological psychology gives to pedagogy so many positive fixed laws, derived from facts gained by observation, that it may be very well satisfied with their realization. Empiric psychology teaches that thought and action primarily depend upon sensations or impressions through the senses; hence pedagogy must give particular attention to a well-designed and systematic selection and order of sense perceptions and their consequent conceptions. How instructive for the teacher is the fact, brought to light by experimental examination, that if the mind is fixed upon a particular impression and, consequently, is in a state of attention and expectation, the process of clear perception is reduced to a minimal limit of time. How promising for the teacher are the experimental investigations of association and associative reproduction. If empiric psychology

teaches that there are no innate and independent emotions, but that emotions are connected with thought perceptions and are called into being together with them and that every idea receives its emotional strength from the impression which produced it, it becomes evident that a suitable selection of sensations must definitely influence the emotional life of the child, which fact the educator must consider. And if empiric psychology teaches that actions are governed by the laws of association and are determined by the selection and combination of present and former sensations, pedagogy must give special attention to the selection and combination of sensations in order to control the actions of the child in the widest range.

These few examples show how significant present empiric psychology, upon a physiological basis, is for the educator. Of course there can be no question of a thorough transformation of pedagogy upon the ground of physiological psychology; as it has given to earlier empiric psychology a firm basis, and developed it, so there will be only a further development of pedagogy. As it is in psychology, as in fact, in every other science, there are and will forever be deficiencies and unsolved problems, so, in the future, there will be unsolved problems in pedagogy, concerning which one must be content with mere experience. The efforts of educators in behalf of psychology should tend to create works which, with original work of investigators as references, will treat minutely those psychologic subjects which are of vital importance to the practical work of training and teaching. Other points, of relatively less value, may be passed over with a mere mention.

The highest aim of philosophy is always the acquirement of a view of the world (Weltanschauung) which meets the want of the human mind according to the subordination of unities under comprehensive, theoretical, and practical points of view, says Professor Hochegger, whose recent death was most untimely for the science in question. This view of the world must culminate in a knowledge of the order of the moral world and must lead to moral actions. Intellectual philosophy—logic—points out the way for correct cognition of the world; moral philosophy—ethics—points out the road for moral action. The development of logic and ethics is influenced by the development of psychology upon the firm basis of natural science, for both are children of psychology. While logic deals with the individual, who is the first object of the educator's study, ethics acquaints us with mankind and the laws of ethical development to which mankind in general gives expression. The former defines the course of individual, the latter the course of social education. Lotze and Wundt pursued a new course in logic. Other investigators, as Sigwart, Schuppe, and Dorner, also hold prominent places in the development of these sciences. The scientific method, which begins with induction and then proceeds to deduction, has proven to be beneficial to psychology also. The advancement of logic was, in this respect, furthered by the development of the separate sciences, which had in the meantime made great strides forward.

The methods for the natural sciences, arranged conformably to wide experience and the results of numerous efforts, can, by careful generalization (omitting what pertains to the individuality of the separate branches), define principles applicable to every kind of investigation, and which, if properly modified, can enrich and clarify all the distinct branches of science. By a comparison of the methods of investigation established in the different fields of science a clear mind must surely arrive at clear and surprising results and certain fundamental principles, which prove that discoveries made from too slender premises are partial errors

or unnecessary time-wasting byways. The principles and methods thus newly found must, moreover, apply to practical life and the schools, and be improvements upon the methods in vogue. (Ehrat: The importance of logic to science, school, and life.)

Logic, therefore, aims at the development of a view by which the world of phenomena can be actually understood and the truth found. It endeavors to prove that by proper perception, consideration, and comparative observation, by an arrangement and adjustment under definitions (consequently by critical judgment and conclusion), and by convincing argument and reliable development of a scientific system (by means of continued and strict induction, deduction, and classification) science originates, and a proper view of the world can be gained and made perceptible.

Such a logic will show how the growing human being must be directed so that the physical and psychical germs of possibilities of a later development within him may grow toward perfection, and that his whole earthly existence may present the realization of ethical and esthetic ideals. It therefore points out the course to be pursued by individual training and outlines the duties of social education, which, in its ultimate aims, is more definitely defined by ethics. It is the duty of the teacher, therefore, to see that upon the foundation of the original work of the expounders of this science, a logic be prepared in which all useless ballast from formal logic (i. e., table of categories, division of judgments, according to the quantity of subject, the quality of predicate, syllogisms, modes, etc.), is omitted, and a scientific methodology (induction, deduction, etc.), be founded on the basis of the qualities and laws of human thought which have been made objects of perception by psychology. Upon the basis of such a logic alone can pedagogy establish the laws of intellectual education and found a pedagogical methodology.

Paulsen, Dorner, and others are associated with Lotze and Wundt in the development of ethics. On the one hand, the effort has been made to define the connection between ethics and psychology, metaphysics, and religious philosophy; on the other hand, the independence of moral laws and their relative independence of these sciences have been maintained; and they have been applied to human action in the different vocations of life. The laws are to be abstracted from the facts of moral life; hence the process of defining the laws is empiric. The moral laws already in existence and tested by moral acts must be defined and established, and applied to the action of man individually and collectively. The view of the world, derived from scientific logic, shows that in the entire world a great, uniform, uninterrupted, progressive movement takes place, to which all phenomena, even those of intellectual life, are subordinate; and that it is the duty of mankind to promote the fuller development of culture toward perfection, so that the order of the moral world may be more and more clearly manifested in civilization.

Students in ethics must not forget that all moral views, as are all facts in intellectual action, are subject to a future development so immense that we have no measure for it. However, from its past development we may estimate its future. Ethics teaches how moral individualism—the striving of the individual after moral perfection, and thereby after happiness—can and must be united with moral socialism—that is to say, the striving of mankind toward moral perfection. Ethics is therefore occupied with the ethical ennoblement of man, individually and socially. But as the formation of moral

character—the ennoblement of man in development to a moral personality in the service of society—is the end of education, so ethics defines the direction of education and its attainment.

The purpose of education is to help man and mankind as a whole in developing toward perfection, formally and materially. The starting point, course, and end of formal perfection are made known to us by the science of man, particularly physiology and psychology. The means, ways, and ends of material perfection in physical, mental, and moral regard are defined by dietetics, logic, and ethics. Consequently, they have always been, and ever will be, the fundamental sciences upon which pedagogy, the science of education, rests.

General pedagogy must follow the course defined by these fundamental sciences, and show how, in accordance with the given laws for the development of intellectual life and moral culture, the end of education is to be attained in the shortest and best natural and scientific way, and with the simplest and best natural and scientific means. For education in the pedagogical sense is the designed and regular influence of the educator on the development of the child, so that it may most surely attain its end on the shortest and best road, with the simplest and best means. Everything which does not meet these demands is excluded from the science of pedagogy.

Pedagogy must be primarily occupied with the object of education, i. e., the child and its development. In order to recognize the lawful course of this development and to what end natural growth tends—for natural growth is ever unchangeable, unaffected by changes of time or culture—it must investigate how this end is more minutely defined by the culture, science, and art of the times, for education must enable the child to elevate himself in the shortest and best way conformable to natural development, from the low stage of mentality in which he is born to the highest state of culture that up to this time has been attained by mankind, and especially by his own nation, and to take a successful part in the development of human culture in the sense of moral perfection.

Finally, general pedagogy must investigate the means and ways and frame applicable rules by means of which the child can attain the proposed end according to the established laws of development. It must, consequently, determine the means and ways by which the pupil acquires a sensible and intelligent view of life and the world, and becomes capacitated for intelligent action. It must find the ways and means by which the development of the individual is so directed that he understands his natural and historical surroundings and is enabled to assert himself in them.

This is the general education which everyone must possess without regard to his vocation, and general pedagogy must keep this in view. This educational aim culminates in the ideal aim of a moral personality—a moral character. It is the same for all time. General pedagogy of the present day need only see to it that the end and the ways thereto, in progressive science, particularly anthropology, logic, and ethics, be more clearly recognized, and that the natural and scientific means for the attainment of this end be chosen with regard to the progress of education and science.

If the educational aims of the time do not conform to the rules established by general pedagogy, if they be not natural nor in touch with the culture prevailing, a change of educational aims is necessary, in the sense that the forming of reasonable views of the world and a moral view of life is aimed at, by means of which the child is enabled

to develop into a moral personality which can successfully take part in the further development of education in the growth toward moral perfection. From this standpoint the selection of educational means and aims separately, their mutual relation and their reciprocal action (concentration), as well as the methods, must be kept in view, in order, if necessary, to exact a transformation according to the demands of the conditions of education and life of the times.

An education which meets these demands also prepares for practical life, for it enables the pupil to participate successfully in the educational work of the present. It places him on a high stage of adaptability, so that under all vicissitudes of fortune he can assert his position in life and become a useful member of society. The particular preparation for a distinct vocation with which special pedagogy is occupied is easily associated with it.

Special pedagogy shows how the rules laid down by general pedagogy apply to particular cases, i. e., to certain school conditions and branches of study, and how they must accordingly be supplemented and expanded. While general pedagogy has a more theoretical character, special pedagogy is more practical, without losing the scientific character and becoming absolutely practical, since it is the consequent construction of general pedagogy with regard to special conditions. The development of general pedagogy, therefore, aids the development and construction of special pedagogy, which is always under the influence of the education of the time.

Test all, keep the good, and if anything better has matured within you, add it to this good, is the task set before *scientific pedagogy*, in connection with the study of pedagogy in its development within the social culture and intellectual life of the times, and from the standpoint of science, art, and philosophy. It is to be critical in its view of the pedagogy of the past, and systematically constructive in reference to the pedagogy of the present. This forms the conclusion of the history of educational development, and contains the directions to be followed by the pedagogy of the future. Many a stone toward the erection of this systematic pedagogy, i. e., for a theory of scientific pedagogy, has been laid. A systematic adjustment to a relatively finished system is still lacking. In separate divisions attempts have been made to mold different studies, especially those of natural philosophy, according to modern points of view; but on the whole the systematic pedagogy of our time is of the past.

Every educational system grows historically from the general status of science and the views of the world and life of a people and its age, consequently there is no system of education generally applicable to all ages. Be the system religious or philosophical; be it the system of a Pestalozzi, Harnisch, or Diesterweg, of a Herbart or Beneke, of a Ziller or Dittes, it is never applicable to all nor to successive ages. Scientific pedagogy of our time, which should direct the course of education and culture for youth in the present and future, must be rooted in the culture of science and philosophy, in the views of life and the world of our time, and derive its rules from them; and it must preserve the good that has been acquired by critical tests of the systems of the past, exclude what no longer meets the present demands of science and the prevailing views, and add the better, which has been found by experience and reflection, under the influence of the progress of social culture and intellectual life—add it in the spirit of truth and love.

A different task is set before practical educators: they must calculate with the given factors and endeavor to turn existing conditions that have a historic foundation gradually into the courses of a natural and scientific development conformable with the demands of scientific pedagogy. They must, therefore, consider even such conditions and factors as are no longer justified by the demands of present scientific pedagogy, but which they have not the power to set aside. They must give directions which, presupposing the pedagogical tact acquired by experience, reflection, and practice, can be directly applied. Because of their direct use to him, practical pedagogy is the chief study for the teacher. But he can never lose the connection with scientific pedagogy without descending to the plane of a mechanic and jeopardizing the necessary and beneficial reciprocal action between theory and practice in the development of pedagogy.

From the points of view proposed let us examine more closely the most important pedagogical writings of the year 1895.

I. *Pedagogy as a whole, in its historical development.*—Recent prominent articles in educational journals and the subjects discussed in 1896 by the National German Teachers' Association (for instance, "The transformation of educational aims according to present demands"), show plainly wherein scientific pedagogy is deficient, i. e., in knowledge of the history of educational development from ancient times to the present in its connection with social culture and intellectual life. If such a literary treasure had been available to elementary school-teachers and its contents had been thoroughly studied by them, they would surely have known that the paramount question should not be put in the form in which it is presented. There can be no question of a "transformation of educational aims." To effect such a change we must be familiar with the development of education in close connection with the social culture and intellectual life of the times and know what relation educational aims, as they are defined in our present school system, bear to the civilization of the times in which they were proposed, and whether they still meet the demands of present culture. If this can not be affirmed, we must investigate further and see what claims are made by the present social culture and intellectual life and how the educational aims of elementary schools must be changed so that they may meet present demands. As these conditions have not been fulfilled, none of the discussions on this subject have had any satisfactory result. In consequence, the executive committee of the National Teachers' Association has changed the wording of the theme, restricting the general question to particulars: "What studies are to be introduced into the curriculum of present elementary schools?" The difficulties in the way of a general answer to this question have thus been only apparently removed, and a treatment of the subject, based upon principles and from the standpoint of scientific pedagogy, has been renounced. There is no other course left now than to answer the question from the standpoint of practical life and the experience of individual teachers. That the answer given will not be the right one, because the firm points of view based on principles are wanting, needs no further argument. The question will be differently answered according to the understanding of the demands of practical life and experience of the individual.

The first question which confronts the educator is the aim of his occupation. To be able to answer this, and answer it in such way as to oppose all contradiction, it does not suffice to rely upon daily experience, or the opinions either of

those by whom we are surrounded or a larger public. Counsel must be sought elsewhere, namely, in science. First in order is the history of education. The study of it is of greatest importance, in fact, indispensable. It must form the foundation and the starting point of all the theoretical schooling of the artist-educator. (Dr. Bergemann, The Foundations of Truly Scientific Pedagogy.)

Anthropologic-ethical pedagogy of itself, that is, without connection with the social culture and intellectual life of the times, proposes a purely formal aim to education (moral personality, etc.). The more immediate purpose which directs general educational aims in their separate parts, and thus defines that which leads to the attainment of the end mentioned in the foregoing discussion (moral, intellectual, physical, and economical education), pedagogy derives from the social culture and intellectual life of the times. From this standpoint, then, the means that serve for the attainment of this end, consequently, the studies of the lower schools, must be selected.

Whoever watches attentively the currents of social culture and the intellect of our times, understands that we are living in an age of great agitation, similar to the transition period from the Middle Ages to modern times, in which scholasticism struggled with free science and its outcome, free philosophy. We are undoubtedly approaching a new era of social culture and civilization, for which the foundations have been laid since the middle of this century, and of the development of which the century to come must take care. New civilization, upon the foundation of modern science, however, requires a new pedagogy; new not in the sense that anything old or rooted in the past must be cast aside and a totally new construction framed, but new in the sense that what has stood the test and still meets present demands of social culture and intellectual life, themselves outgrowths of the past, be preserved and supplemented, expanded and intensified conformably to educational and intellectual progress. In substance, scientific and practical pedagogy of our times rests upon the past. Occasionally we notice a few innovations, often without any well-founded relation to the whole, which attempt to justify the claims of present life. In last year's report (Richter's Pädagogischer Jahresbericht, 1894) we discussed different attempts to frame a new structure according to the demands of the social culture and intellectual life of our times. As we then demonstrated, biased views were followed, isolated as they were from the development of pedagogy, and, therefore, not founded on the firm substructure of a history of educational growth. This must first be established before we can set the capstone in the erection of a new structure.

We exact nothing new in this respect. Karl Schmidt has, in four comprehensive volumes, already given us a "History of Pedagogy, treated in historical development and in organic connection with the intellectual life of nations." Independent of the mistakes and deficiencies that must attach to so comprehensive a work, which treats of the development of all educational efforts in their arrangement and various applications, uniformly and from every point of view, there is the further fault that in 1890 only the first volume appeared, revised with the aid of later investigations and discoveries. It is, however, the last of the four volumes, treating of the present time, from Pestalozzi to Dittes, which must be thoroughly revised to meet the present requirements of a history of education. The first volume of the work in its new edition, owing to its extensive plan, has attained such a dimension that it has found few purchasers among teachers. That may be the reason why the revision of the following volumes has not

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those by whom we are surrounded or a larger public. Counsel must be sought elsewhere, namely, in science. First in order is the history of education. The study of it is of greatest importance, in fact, indispensable. It must form the foundation and the starting point of all the theoretical schooling of the artist-educator. (Dr. Bergemann, The Foundations of Truly Scientific Pedagogy.)

Anthropologic-ethical pedagogy of itself, that is, without connection with the social culture and intellectual life of the times, proposes a purely formal aim to education (moral personality, etc.). The more immediate purpose which directs general educational aims in their separate parts, and thus defines that which leads to the attainment of the end mentioned in the foregoing discussion (moral, intellectual, physical, and economical education), pedagogy derives from the social culture and intellectual life of the times. From this standpoint, then, the means that serve for the attainment of this end, consequently, the studies of the lower schools, must be selected.

Whoever watches attentively the currents of social culture and the intellect of our times, understands that we are living in an age of great agitation, similar to the transition period from the Middle Ages to modern times, in which scholasticism struggled with free science and its outcome, free philosophy. We are undoubtedly approaching a new era of social culture and civilization, for which the foundations have been laid since the middle of this century, and of the development of which the century to come must take care. New civilization, upon the foundation of modern science, however, requires a new pedagogy; new not in the sense that anything old or rooted in the past must be cast aside and a totally new construction framed, but new in the sense that what has stood the test and still meets present demands of social culture and intellectual life, themselves outgrowths of the past, be preserved and supplemented, expanded and intensified conformably to educational and intellectual progress. In substance, scientific and practical pedagogy of our times rests upon the past. Occasionally we notice a few innovations, often without any well-founded relation to the whole, which attempt to justify the claims of present life. In last year's report (Richter's Pädagogischer Jahresbericht, 1894) we discussed different attempts to frame a new structure according to the demands of the social culture and intellectual life of our times. As we then demonstrated, biased views were followed, isolated as they were from the development of pedagogy, and, therefore, not founded on the firm substructure of a history of educational growth. This must first be established before we can set the capstone in the erection of a new structure.

We exact nothing new in this respect. Karl Schmidt has, in four comprehensive volumes, already given us a "History of Pedagogy, treated in historical development and in organic connection with the intellectual life of nations." Independent of the mistakes and deficiencies that must attach to so comprehensive a work, which treats of the development of all educational efforts in their arrangement and various applications, uniformly and from every point of view, there is the further fault that in 1890 only the first volume appeared, revised with the aid of later investigations and discoveries. It is, however, the last of the four volumes, treating of the present time, from Pestalozzi to Dittes, which must be thoroughly revised to meet the present requirements of a history of education. The first volume of the work in its new edition, owing to its extensive plan, has attained such a dimension that it has found few purchasers among teachers. That may be the reason why the revision of the following volumes has not

yet been undertaken, and is not anticipated. The development of pedagogy before Pestalozzi is not so important to the teacher, for, in fact, actual pedagogy for elementary public schools exists only since Pestalozzi, since a knowledge of the science and art is not altogether indispensable, as the pedagogy of Pestalozzi is rooted in the time before Pestalozzi. A history of pedagogical development for teachers must comprehensively treat of the times before Pestalozzi, and lay special stress upon the facts which are important and valuable for the public-school education. (Karl Schmidt devotes three large volumes to these.) The time since Pestalozzi requires a thorough treatment, so that the teacher may obtain a clear insight into the pedagogy for elementary public schools, and can distinctly recognize the claims of the present on the educational aims of schools designed for the masses.

The writer has for years labored at such a work (Guide to the Further Education of Teachers), and its outlines have been finished. These outlines, like other similar books, may suffice for those teachers who confine themselves to the first and most important occupation of their profession, teaching and training, and take only a limited part in pedagogical advancement. For all other public-school teachers, and particularly for teachers in normal schools, a cursory presentation of the subject does not suffice, especially if they wish to participate actively in the development of scientific and practical pedagogy for public schools. In "The pedagogy of Pestalozzi in its development, construction, and completion, and according to its influence upon the formation of school systems," the writer has endeavored to give a comprehensive treatise on the period of the birth of pedagogy for common schools, according to the quoted points of view. He intends to present in the same way in a volume of the same compass the development before, and in two more volumes the development after Pestalozzi, so that the last volume will be a treatise on the currents of pedagogy and its fundamental and auxiliary sciences in connection with the civilization of our times.

The past year (1895) was not wanting in contributions and original references for such a work, both as regards the fundamental sciences and actual pedagogy. The more and the more thoroughly we investigate and labor in this respect, namely, the more old school records and other official documents are utilized in the preparation of articles on the development of school systems of separate cities and States, the more reliable will be the presentation of the whole in which the essential facts are united. Most of the smaller works on the history of education are conglomerations of all kinds of facts, some worth knowing, others worthless, but not a single work on history of educational development in the sense in which we are to apply the term. Still, they meet the requirements of the customary instruction in normal schools of to-day; and for purposes of fitting students for professional examinations they do well enough.

II. *The fundamental sciences of pedagogy* have been essentially enriched during the past year. We note valuable new works on the history of philosophy and on the results of late investigations in psychology and logic, and authoritative works on ethics. Greater efforts are constantly being made to render the results of scientific investigation accessible to the unlearned in a form that is easily understood. The authors are careful to separate the positive facts from mere hypotheses and theories not yet sufficiently tried. The examination of problems in psychology and ethics is discussed, and their solution attempted from present standpoints of these sciences. The efforts

in both directions are beneficial for pedagogy. On the one hand, teachers are enabled to acquaint themselves with the results of scientific investigation without the difficult and absorbing study of more comprehensive works; and, on the other hand, they can occupy themselves with purely pedagogic questions, such as attention, distraction, and others of great importance to educational practice. Since Pestalozzi, all leading teachers have emphasized the fact that a successful education is possible only with a correct knowledge of man in his physical and intellectual character. Of course, we can not rest with this knowledge alone. The child must be studied from the acquired points of view, and the established psychological laws applied to the solution of special educational tasks. Even if we have no books which treat of psychology, logic, and ethics in the form above defined with respect to pedagogy, according to the present status of these sciences, the way has been opened for the publication of such works in the course of time.

III. *General pedagogy* has been enriched this year by several valuable monographs (on interest, concentration), but there are no comprehensive treatises on the basis of later psychology, logic, and ethics. Reforms, deserving of increased attention, are being prepared in general didactics, as we learn from several pamphlets at hand. The impulse has been given by ethics on the one hand and by special sciences on the other, and has already exerted a strong influence on the different branches of study of special methodology.

IV. *In special pedagogy* we can only note monographs, few of which, however, deserve to be classed among the literature of special pedagogy. They refer mostly to subjects of methodology. They treat mainly of the valuation of matters submitted by special sciences for moral and economic training (in lessons on religion, in natural study, and other branches). In all branches of instruction there are noticed strenuous efforts to establish the causal connection between the various departments of science, to place things and phenomena according to the natural connection in which they actually exist, and to sift and supplement the subject-matter conformably to the results of the scientific investigation of the times and its value for religiously moral, intellectual, and economic education.

If we compare with open eyes the demands of the times and of science with those of scientific and practical pedagogy, we are convinced that scientific pedagogy must consider more than heretofore the demands of the times and of science, and that special pedagogy must pay greater attention to the demands of general pedagogy. The teachers of public schools must fully understand this fact. Beyond question the public schools of to-day give better results than those of fifty years ago, but their progress has not kept pace with the immense changes in public life and the necessities occasioned thereby. The selection, arrangement, and treatment of studies must be repeatedly subjected to a minute investigation from the standpoint of natural and scientific pedagogy. Should the result be a transformation of official—i. e., practically applied—pedagogy in respect to well-defined educational aims, scientific pedagogy must endeavor to have these demands recognized and met with in practice. This is entirely in accordance with both nature and culture, for progress everywhere means the normal condition—health. A standing still is an abnormal condition—disease; and diseases in social bodies lead to revolutions.

A harmonious development of man in body and soul into a noble

human character, in whom the sensual is subordinate to the intellectual and the intellectual to the moral, is to-day, as it was in Pestalozzi's time, the highest formal aim of the education of the individual. But the claims of social pedagogy—i. e., to understand the individual as a member of his race, and particularly as a member of his nation, and develop him into a moral personality, capable of successfully taking part in the educational work of his time in the sense of educational progress—are more prominent than ever. In this sense our times demand an increase in valuable matters of formal education of the individual, in view of the fact that every member of the State should attain the highest possible grade of physical, mental, and moral development, so that under all vicissitudes he can assert an independent position in life, understand his existence in a world of reality, be a useful member of society as a strong, moral individual, and firm, independent personality, and can intelligently take part in social progress toward perfection.

Above all things, then, our times require a harmonious, natural, and scientific perfecting of physical, mental, moral, and economic development of the individual, especially in his mutual relations with others. They require the body to be strengthened, the intellect trained, and the will disciplined. It is therefore necessary to give closer attention to the care of juvenile and national games, to manual training, and to reforms in nature study, historical and ethical instruction, and to the introduction of the studies of civics and national and domestic economy. All these branches must be examined, and the dividing line sharply drawn between what belongs to the general education of every pupil in the common schools and what to a special education, and confined to supplementary schools. A thorough sifting of matter in regard to these studies must take place, so that all matter foreign to moral, social, and economic education may be rejected. Close attention must be given to removing all useless ballast from the curriculum of the schools, and to making the studies correspond to the present demands of science and the view of the world and life founded on it. In the acquiring of a harmonious and reasonable view of the world and life lies moral self-dependence for the individual or the nation, which guarantees the development of mankind in the sense of moral perfection. This self-dependence results from a clear understanding of natural and civilized life, and from an emotional and intelligent comprehension of moral and religious truths and their connection with the natural laws of life. Successful participation in the social life of communities and the State requires a clear knowledge of the history of the development, the conditions of existence, and the construction of these social organisms, as well as the ability to recognize and respect the rights and duties owing to them. The individual must therefore learn the history, the conditions of life, and the constitution of his nation and his State, must convince himself that he can only find his construction of life and earthly destiny in the social whole, and must arrive at an earnest determination to participate successfully in the civilizing work of his time and his nation.

Finally, the individual can only participate in the economic work of the civilization of his times if he penetrates the laws of nature in so far as they affect his sphere of action, and reviews the economic organic connection of personal work with the general civilizing work of his nation. He can take an active part only if he can master and apply these laws, and is willing to enter their service. However, a

proper arrangement of the curriculum must establish such uniformity among the separate studies that they give reciprocal support, and make possible the formation of a uniform sphere of thought, the separate parts of which are most intimately joined.

Of course, the treatment of the studies must follow the laws of pedagogic methods, which receive their direction from psychology and logic. Discipline, in obedience to ethical laws, must support the education of the intellect and assist in bringing the formation of ethical character nearer to perfection. It must associate with the view of the world and of life, acquired by means of the education of the intellect, and mold the energy produced by ethical ideas based on this foundation into a fixed purpose of the will which no obstacle can turn aside from making these ideas rule in any one life or in the social organism of a nation.

SPECIAL SCHOOLS OR SEPARATE CLASSES FOR CHILDREN OF LIMITED MENTAL CAPACITY.

In November, 1892, the minister of public education in Berlin published an order referring to the fact that in several cities of the Kingdom of Prussia the local school authorities had arranged for separating from the majority of pupils children intellectually slow and dull, but otherwise normal, and by no means to be confounded with idiots, by establishing either special schools for them or separate classes in large schoolhouses. He particularly emphasized the consideration that the pupils to be selected for this special instruction should not be idiots—that is, children entirely helpless and only fit to be placed in asylums—for such individuals had no place in a public school; but he intimated that children should be selected who are a "dead weight" in school, and fail to be promoted because they can not keep pace with average pupils. Such children might be benefited by methods specially adapted to their weakness, and the course of study might be altered and curtailed to suit their capacity.

He furthermore insisted that every pupil assigned to these special schools or separate classes must be subjected to a careful physical examination by a physician to determine whether their intellectual weakness be not the result of defective senses, or other causes that may be removed. He closed his order by calling for a report of every school inspector in whose district such an establishment exists.

The result of this inquiry in March, 1893, was published in tabulated form in June, 1894. The minister prefaced this brief table by saying that such institutions were in existence in eighteen cities of the Kingdom. While in previous years the special classes had been partly filled with children morally unsafe, these had lately been withdrawn, and now only children of dull intellect were thus treated separately. These were pupils who, during an attendance of two or three years in graded schools, had given evidence that they could be taught, but were unable to keep pace with normally endowed children.

Experience, he stated, had proved that such children could be found everywhere, and that both the poorly and the normally endowed were benefited by a separation. The authorities of several cities reported that these intellectually weak children were normal enough to educate to be useful members of society, if their training were carefully adapted to their needs. The minister repeated his injunction, that no child be assigned to such a school, or special class, unless a physician had given his consent, and stated that the retarded intellect was caused by constitutional defects, or was an after effect of disease, and hence could not be accelerated by the usual school influences, but needed special treatment. The minister expressed his approval of the efforts of teachers in behalf of child-study, especially in gathering data concerning the history of mental development in weak-minded children. The consent of the physician, he remarked, was most desirable, inasmuch as such authoritative action would be a safeguard against assigning to these separate classes any children who are normally or excessively endowed by nature.

The opinions called for had proved unaminously favorable, and in many cities both school and city authorities followed the enterprise with sympathy and deep interest. In consequence of the decided success of the older institutions of this kind, other local authorities had been induced to grant the required appropriations, so that the number of pupils could be restricted to 25 in any one of these separate classes or schools. He gathered from the reports sent him that specially talented and skillful teachers had been employed, and that their salaries ranged considerably higher than the average. The name given to these separate classes in Prussia is "Hilfsklassen für schwachbegabte Kinder" (supplementary classes for weakly endowed children).

In these special classes no lesson or exercise is allowed to exceed thirty minutes, and the amount to be learned in a year's course is not as great as in ordinary schools. The result, the minister thinks, might be considered quite satisfactory if the children, when ready to be dismissed at 14 years of age, have reached the degree of proficiency usually attained by children of 11 or 12 years. A number of carefully itemized courses of study submitted to the minister (but not published) are approved as exhibiting a laudable consideration of the particular aims of such institutions, with regard to both the amount and the selection of matter to be taught. Subjects, for instance, which require exceptional mental effort are set aside in favor of others better adapted to develop physical energy and practical skill. Outside of Berlin all the separate classes for intellectually dull children are maintained by municipal government, while in Berlin such children are placed under private care.

TABLE I.—*Institutions for intellectually weak children of school age in Prussia, 1892.*

Name of city.	Number of—				Is physician's certificate required?	Teachers.	Remarks.
	Institutions.	Pupils.	Classes.	Grades.			
1. Königsberg	2	37 14	3 1	2 1	Yes	2 male and 2 female	24 hours a week.
2. Stettin	4	10	1	1	Yes	1 male	18 hours a week.
3. Breslau	1	62	4	1	Yes	1 male and 2 female	18 hours a week, and more classes are being formed.
4. Magdeburg	3	70	3	1		3 male and 1 female	23 hours a week.
5. Halberstadt	1	23	1	1	Yes	1 male	22 hours a week.
6. Halle	1	17	1	1		1 male	24 hours a week.
7. Erfurt	1	48	3	3	Yes	2 male and 1 female	Do.
8. Nordhausen	1	18	1	1	Yes	1 male	Do.
9. Altona	1	70	3	2	Yes	2 male and 2 female	Do.
10. Hannover	1	128	6	6	Yes	6 male and 1 female	30 hours in the upper grade.
11. Dortmund	2	14 —	2	1		2 male	24 hours a week.
12. Cassel	1	64	3	3		2 male and 1 female	Do.
13. Frankfort on the Main.	1	111	6	6	Yes	3 male and 3 female	Do.
14. Düsseldorf	1	84	3	3	Yes	2 male and 1 female	24 to 26 hours a week.
15. Crefeld	1	86	3	3		2 male and 1 female	22 to 30 hours a week.
16. Elberfeld	1	101	4	3	Yes	4 male	Do.
17. Cologne	2	146 117	6 4	3	Yes	5 male and 5 female	26 hours a week.
18. Aix la Chapelle	1	174	6	3	Yes	3 male and 3 female	24 hours a week.
Total	26	a 700	64	....	.....	43 male and 21 female	

a Approximately.

On the 28th of August, 1896, the minister of education published a second report, which revealed the facts that from the 18 cities which in 1894 had provided for separate classes for dull children there had been an increase to 27, and in the number of pupils from 700 to 2,017. He expresses his satisfaction that the unexpected success of these institutions has resulted in removing obstacles arising from the opposition of parents against a separation of their children from the majority. He assures the local authorities that he will continue to watch with sympathy their efforts in behalf of these separate schools or classes, and will aid them as far as possible. The following is the result of the last statistical inquiry, dated January 13, 1896.

TABLE II.—*Statistics of educational institutions for intellectually weak children of school age in Prussia, January, 1896.*

Name of city.	Number of—						Date of founding.	How maintained.	Is physician's certificate required?	Is account kept of each child's development?	Sent back into public school.			Number of pupils withdrawn.		
	Institutions.	Pupils.	Classes.	Grades.	Teachers.	Hours per week.					Number of pupils.	Age of pupils.	What grade.	Sent to asylums for idiots.	Withdrawn on account of epilepsy.	Sent to other educational institutions.
Königsberg	2	42+17	3+1	2+1	2 male and 2 female.	18, 22, and 24.	.....	By city.	Yes	No	9 since 1888.	9 to 12	Middle 8, lower 1.	2 to 3.	.....	1
Brandenburg	1	19	1	1	1 male and 1 female.	18	1895	do	No	Yes	.....	.....	.....	.....	.....	.....
Charlottenburg	1	86	4	4	4 male and 1 female.	22 to 27	1893	do	Yes	Since 1896.	4	8 to 12	Upper 1, lower 3.	1	.....	.....
Guben	1	8	1	1	1 male	*a* 6	1886	do	No	Yes	.....	.....	.....	1	1	.....
Stettin	1	22	1	1	1 male	18	1892	do	Yes	No	.....	.....	.....	1	.....	.....
Breslau	*b* 6	*c* 111	8	*d* 1	3 male and 3 female.	18 to 24	.....	do	Yes	Yes	.....	.....	.....	4	1	.....
Görlitz	1	45	2	5	2 male	19 to 23	1893	do	Yes	Yes	4	9 to 10	Lower 4	.....	1	.....
Magdeburg	5	130	5	1	5 male and 5 female.	23	.....	do	No	Since 1893.	50 since opening.	*e* 9 to 10.	Second school year.	.....	.....	.....
Halberstadt	1	42	2	2	2 male	20 to 36	.....	do	Yes	Since 1896.	3	11 to 12.	Third school year.	1	.....	.....
Halle	1	27	1	2	1 male and 1 female.	23 to 26	1863	do	No	Yes	11 since 1894	.....	.....	4	2	.....
Erfurt	1	71	5	2	2 male and 1 female.	20 to 26	.....	do	Yes	Yes	.....	.....	.....	1	.....	.....
Nordhausen	1	22	1	4	1 male and 1 female.	28	.....	do	Yes	Yes	.....	.....	.....	2	.....	.....
Altona	1	118	5	3	3 male and 2 female.	24 to 30	1889	do	Yes	Yes	16 since 1889	8 to 13	Sixth school year.	5	3	.....
Hannover	1	128	6	6	6 male and 1 female.	20 to 30	1892	do	Yes	Yes	3	9 to 11	Fifth school year.	3	.....	.....
Göttingen	1	21	1	2	1 male and 1 female.	24	1895	do	Yes	Yes	.....	.....	.....	.....	.....	.....

Lüneburg	1						1896	do							
Dortmund	2	22+37	2	4	2 male	24	{1883 1883}	do		Yes	{About 5 per year.}	c 10	{Fourth school year.}	3	1
Cassel	1	101	5	3	4 male and 1 female.	22 to 24	1888	do	(f)	Yes	4 since 1888	9 to 11	Middle grade	3	
Frankfurt	1	136	6	6	3 male and 3 female.	24		do	Yes	Yes	7 since beginning.	10 to 14	do	2	
Düsseldorf	1	117	4	4	3 male and 1 female.	24 to 26		do	Yes	Yes	1	11	do	7	
Crefeld	1	81	3	3	2 male and 1 female.	22 to 30		do	Yes	Yes	6 since beginning.	9 to 13	Middle and lower grade.	7	5	6
Elberfeld	1	103	4	3	4 male	22 to 30	1879	do	Yes	Yes	13 since 1879	8 to 13	Middle and upper grade.	5	13	
Essen	2	55	2	2	2 male	26	1895	do	Yes	Yes						
Cologne	2	382	10	3	{5 male and 5 female.}	26	{1896 1890}	do	Yes	Yes	6	10 to 12	Middle grade	12	5	5
Aix la Chappelle	1	174	6	3	3 male and 3 female.	26 to 30	1888	do		Since 1896	35 since 1888	8 to 12	All grades	3		
Berlin	(g)	95						do	Yes	Yes						

a Outside of school hours.
b 3 Protestant and 3 Catholic.
c 57 Protestant and 54 Catholic.
d With supplementary grade for advanced pupils.
e Average.
f In some cases.
g Private care.

Remarks.—Königsberg reports that the pupils of 14 years, who are dismissed from the special classes, have all been able to earn a living. Charlottenburg and other cities report that nearly one-half of the time devoted to the mentally slow pupils is spent in giving manual training. Occasional reports state that about 40 per cent of these dull children are girls, and that in every case where a sufficient number of girls are found they are taught by a woman, chiefly in woman's handiwork. Many of the pupils are found to have defective senses, either of sight or hearing, and that when the defects are cured, they are all able to take up the work of the regular school and are sent there. There are occasional cases of children who prove entirely unable to learn arithmetic, reading, or writing. These are chiefly taught manual dexterity. In some cities, notably in Dortmund, Westphalia, the percentage of mentally slow pupils, fit only for separate classes, has been found to be two to three in a thousand. Naturally they are found in centers of population oftener than in the country.

In connection with the foregoing governmental report it is instructive to present a feature of the schools of Berlin which sheds light on the necessity of caring for children who do not quite come up to the average in intellectual attainments. The report of the Berlin school board of 1895 contains these statements:

Of all the pupils in the first or primer classes in the city there were 4 boys and 1 girl aged 14 years, 2 boys and 5 girls aged 13, 12 boys and 10 girls aged 12, 37 boys and 31 girls aged 11, 95 boys and 89 girls aged 10, 428 boys and 320 girls aged 9, who should be treated like those considered as being but 6 years old, or at most 7.

Of all the pupils in the second grade in the city there were 11 boys and 1 girl aged 14 years, 50 boys and 44 girls aged 13, 135 boys and 150 girls aged 12, 421 boys and 370 girls aged 11, 1,040 boys and 1,048 girls aged 10, who should be treated like those considered as being but 7, or at most 8 years old.

Of all the pupils in the third grade in the city there were 3 boys and 1 girl over 14 years, 56 boys and 48 girls aged 14, 389 boys and 438 girls aged 13, 896 boys and 1,006 girls aged 12, 1,804 boys and 2,031 girls aged 11, whose average age should be considered as being but 9 or 10 years.

Of all the pupils in the fourth grade in the city there were 2 boys over 14 years, 214 boys and 236 girls aged 14 years, 1,392 boys and 1,457 girls aged 13, 2,346 boys and 2,710 girls aged 12, while the average age of normally endowed children of this grade is between 10 and 11 years.

Of course the figures are to some extent explained by the enormous influx of population during the last twenty years, a period during which Berlin grew faster even than Chicago. They are also explained by the rapid shifting of the population which followed the demands of the labor market and the ever-shifting conditions in industry.

But it is reasonable to suppose that among the great number of pupils reported as above the average age there are many who might be benefited by special care in separate classes.

SEPARATE SCHOOLS IN THE UNITED STATES.

The idea of establishing separate classes or schools for pupils of limited natural endowment was first presented to American teachers by Prof. August Schneck, of Detroit, in a paper read before the German-American Teachers' Association in 1878. It was taken up by Dr. Andrew J. Rickoff, superintendent of schools in Cleveland, Ohio. He established two such schools, but chiefly for morally unsound children—that is, boys and girls who had proved unsafe companions for others. Superintendent Frank Hall, of Waukegan, Ill., recently followed this example and established such a school in his town.[1] It is not to be, in any sense, a limbo for the reception of mental and moral cripples, but will have careful plans of work, and will be just as "respectable" as any other school, as will be seen from the following announcement of Mr. Hall:

Into this room pupils will be admitted from the following classes:

1. Those who have not been in school for several years, and who now desire to avail themselves of school privileges, but do not seem to class well in any of the regular departments.

2. Those who have completed the eighth-grade work, and for good and sufficient reasons do not desire to take the regular work of the high school, but who are anxious to become more proficient in the so-called common school branches.

3. All pupils over 14 years of age and less than 21, whose education, in the judgment of the superintendent, can be better provided for in this department than in any other department of the school.

The practical side of school work will receive especial emphasis. The arithmetic of the farm, of the workshop, and of the store will be made prominent. We can not, with our limited facilities, compete with the commercial schools, but elementary bookkeeping will be taught, and the pupils will have frequent exercise in writing letters, receipts, duebills, notes, etc.

In a small way we hope to introduce work in manual training—enough of this, at least, to assist the pupil in relating his school work to any legitimate manual occupation in which he may expect to engage. "That form of mind training called manual training" is desirable for all, but it is absolutely essential as a means of creating and maintaining interest on the part of those pupils who do not expect to become merchants or to engage in the learned professions. While we shall emphasize the so-called practical studies in this department, we shall, in addition to this, spare no pains to interest the pupils in good reading; to create a love for good books; to train them in thinking and in the expression of thought, and, in a word, to open to them some of the avenues that lead to higher intellectual culture and to the pleasures of the spirit. In all this we shall not lose sight of the fact that the aim of education is good character, and that good character implies useful occupation.

Much that we shall attempt is, in some respects, experimental and tentative. All we can ask of any who may doubt the expediency of such a movement is that

[1] Previous to this service at Waukegan, Mr. Hall was principal of the State Institution for the Blind, a position which he has resumed.

they grant us the boon of what some one has called the greatest discovery of the nineteenth century—suspended judgment.

Though Mr. Hall will evidently pay particular attention to pupils of retarded development, he is benefiting his town by the establishment of a school resembling the German continuation or supplementary schools.[1]

A valuable contribution to the discussion on separate schools for intellectually weak children is found in the proceedings of Philadelphia Educational Club during its session on the 11th of January, 1897. The report of this session is contained in The Teacher, published in Philadelphia. Permission to reprint the article has been secured from the editor. As has been said before, American teachers do not restrict themselves to advocating separate schools for mentally weak children; they advocate also the admission of the morally unsound to these schools. This will be seen from the following discussion of the teachers in Philadelphia:

The subject of the evening was "Special schools for individual children," and the first speaker was Mrs. Rhoda A. Esten, of Providence, R. I., who said in part:

The purpose of the special schools of Providence is to provide suitable instruction and discipline for pupils for whom our present graded system of schools is not well adapted. The immediate occasion for the establishment of these schools was the abolition of corporal punishment in some grades and its very great restriction in others, combined with a strict enforcement of the "truant law." The change in the mode of enforcing discipline in our regular schools caused the teachers great trouble at first. Discipline became more difficult and some means of restraining those who seemed not to be amenable to reason were needed. At first the remedy against insubordination was suspension and sending home to parents. We found, as others have found, that the frequent and wholesale sending pupils home for misconduct brings the school into disrepute and the teacher into contempt. The parent becomes exasperated and denounces the teacher in the presence of the child or punishes the child with too great severity. The strict enforcement of the truant law compelled the pupils, turned loose upon the street, to return to school, thus causing the attendance of a class of children who never relish the confinement of the school—the truants and children of the street.

Provision for chronic truants.—The committee recognized that some provision must be made for these pupils, and met the issue by establishing special schools whose work in part was to provide for this class. Six of these schools were established during the school year 1893-94 and one in October, 1894. The schools were organized as annexes of our grammar schools, but were opened in detached buildings. Five occupy evening schoolrooms, one a ward room, one a hired chapel, one an unused room in a primary school building. Of the pupils provided for in these schools, perhaps the most deserving are those who, by reason of poverty or lack of means, can attend school only eighty days of the year, and, in consequence of this loss of time in school, fail to keep up with their grade work.

The boy who gets behind his fellows and has grown old in years and become maturer in powers, but deficient in his acquisitions, can not be well provided for in our graded schools. He enters school after a year's absence, perhaps, and is classed with pupils younger and smaller than himself. This is galling to his pride. If he be a boy of good ability, to whom opportunity has been lacking, he

[1] See articles on this subject in Annual Reports of 1893-94 and 1894-95, under the title, "Education in Central Europe."

can do much more than his classmates, but has no opportunity to go faster. If he be dull, staying at home has not increased his power of acquisition, though some development has come with years. In a manufacturing city like Providence the number of pupils of this class is large.

Our superintendent and committee recognized the needs of this class early in the school year 1887-88 and urged the necessity of establishing ungraded schools with a course of study adapted to meet the needs of this class, who can only go to school for a few years. The committee concurred with the superintendent, but the council failed to act. These pupils are now provided for by our special schools.

Other classes of children benefited.—There are other pupils who, from absence and lack of self-control, fail to do well and become a disturbing element in the regular schools, requiring so much of the teacher's time to manage as to prevent her from doing justice to the large number of regular, obedient, and studious children under her charge. In these schools, under teachers strong in self-control, patient and tactful in management, these pupils are brought to a state of obedience and self-respect. Pupils who for some cause are disaffected and out of harmony with their surroundings are much benefited by a short sojourn in these schools. Intelligent foreigners, who desire to obtain a knowledge of the English language and are too old to enter the grade in which their present acquisitions would place them, also become pupils in these schools. Perhaps the most difficult and least meritorious, and yet most needful of the pupils provided for in these schools, are the children forced into school—the unfortunate neglected ones who, from lack of sympathy or control at home, have become indifferent, unruly, and unwilling to attend school. With no disposition to work, it is impossible for these to take up the regular work of our graded schools, yet these pupils are compelled by law to attend school. These schools give to these pupils an opportunity to become educated, respectable citizens. There is no class of pupils that it will pay any State or city better to discipline and educate than this. In many instances these pupils have become industrious, ambitious, orderly, and respectful.

The selection of teachers.—Great care, wisdom, and judgment were exercised on the part of the superintendent in the selection of teachers for these schools. Strong-willed, self-reliant, self-possessed, cultured, kind, and sympathetic women are essential. Such teachers were selected from among the best in our schools. They rank as eighth grade teachers and receive a salary of $675 per annum. It ought to be $1,000 per annum.

The number of pupils to a teacher in these schools is limited to twenty or twenty-five, although better work is done with twenty. Pupils sent for discipline are required to remain in these schools until, in the judgment of the teacher, they have acquired sufficient self-control and respect for lawful authority to enable them to enter the regular schools with a fair prospect of remaining. Some of these pupils are so peculiar in their dispositions that it is probable they may never go back to the regular schools.

Discipline corrective, not punitive.—As the aim of these schools is mainly the character building, the discipline is corrective, not punitive. Great pains are taken by the teachers to implant in the minds of these pupils a just conception of their duties to themselves and to those around them and a respect for lawful authority, thus including in the school training the training of the home in a marked degree. The teachers of these special schools receive these pupils kindly and show a personal interest in learning their attainments and preferences, and in pointing out to them what they can do. The past is ignored and a new start taken. Teachers are allowed to use corporal punishment if they deem it useful in any case. They are not to endure disrespect and impertinence tamely in order to make a reputation for managing bad boys without punishment. At the same time, they are to avoid it if it arouses antagonism, and by all means, so far as possible, to have no altercation with a pupil in the presence of others.

Selection of the pupils.—Pupils who fail in respect for and obedience to the rules of schools and can not be brought to a proper state of control through the means at the command of the teacher are referred first to their parents, who are requested to call and cooperate with the teacher. This throws the responsibility on the parents, and gives them the opportunity to make the pupil obedient. Should the parent fail to appear within twenty-four hours, or appearing, and through lack of power or ability fail to bring the pupil to a proper state of obedience, the latter is then sent to the office of the superintendent. Here he is dealt with in a firm, kind manner. If the pupil responds to his admonitions and expresses the desire to have another trial, unless the offense is a very grave one, he is given the opportunity to return to his school again on trial. If he is again sent to the office, a transfer to the special schools is at once given.

These schools are under the immediate charge of the "supervisor of discipline," who is expected to spend at least one hour a week in each school studying the pupils, noting the interest which they manifest in their work, and their progress—mainly, in two essentials, habit and disposition. These teachers meet weekly with the supervisor and discuss the best means of governing and disciplining their pupils, and of inculcating in them right motives of action, correct habits; also proper respect for lawful authority. These discussions are held at the round table for child study.

Our superintendent, who was mainly instrumental in establishing these schools, and to whose reports I am indebted for many of the facts here presented, gives much thought and time to them, making valuable suggestions to both supervisor and teachers. The schools are also visited once a week by the "truant officer," who inquires into the cases of absence and truancy. He has rendered valuable service to the supervisor in looking up these boys in their homes and impressing the parents with the majesty of law and cooperating fully with the teachers. Two records of each pupil are kept at the office of the superintendent of schools—first, his record in the school from which he came; and second, his record in the special school. Each child as he enters these schools is made an object of study by the teacher. His physical, mental, and moral defects are noted, and a written record is made of the same. Care is taken to note the effect of certain methods of discipline and punishment.

Effect of the special schools.—Our special schools help us to make good schools the rule. They bring relief to the regular schools by freeing them from disturbing influences and relieving the regular teacher from the severer strain of discipline. Thus she is enabled to devote herself the more fully to the needs of the ordinary and more responsive pupils. By their aid we have successfully reclaimed and properly instructed and disciplined many persistently unruly pupils who could not be retained in our ordinary graded schools, with whom the only alternative was suspension, thus throwing upon the street the very class most needing instruction and discipline. These schools are now placed upon a firm basis, and are a potent auxiliary in our school system.

The following statistics will show something of the work of these schools since their organization:

From the organization of these schools to June 30, 1895, was a period varying in the several schools from nearly two years to a year and three months. During this period 372 different pupils were enrolled, and of these only 5 were sent to the Reform School and but 1 expelled.

At the beginning of the school year 1895–96, 92 pupils remained in the disciplinary schools from the previous year. To these, 231 were added, making 323 cases treated; 16, however, were sent to these schools for reasons other than misconduct. Of these 323 pupils, 120 were returned to the regular schools, where 100 maintained themselves in good standing, and 20, having failed to be satisfactory

to the teachers, were returned to the disciplinary schools. Sixty-four left to go to work, 5 went to private and parochial schools, 11 moved from the city, 2 died, 10 were sent to the Reform School, and 30 were reported at home—7 on account of sickness; 23 having attended the required eighty days were assisting their parents. One hundred and one remained members of the special schools at the beginning of the present year.

The table that follows shows the grade of the pupils in these schools for the school year 1895–96:

Grade.	Number.	Grade.	Number.
1 B	4	6 B	50
1 A	3	6 A	21
2 B	5	7 B	21
2 A	13	7 A	17
3 B	14	8 B	13
3 A	25	8 A	10
4 B	20	9 A	1
4 A	40	Ungraded	11
5 B	23		
5 A	33	Total	328

As will be noticed, these pupils were of all grades but one below the high school, but the greater number were of the middle grades, those of the third to the seventh years. One grade, the 6 B, stands out conspicuous from its number. These were the boys just entering the grammar schools and coming into new combinations of pupils and under the control of men. In any community where there are pupils to be instructed in sufficient numbers to permit it they will be classified, and, should the number be large enough to furnish several classes of corresponding advancement, they will be graded. Grading produces both economy and efficiency in instruction. Theoretically, all pupils of a grade are able to do the same work and advance at the same speed; but practically it will be true that great differences of power will be found to exist—differences in mental acuteness, in mental grasp, in industry, ambition, health, steadiness of attendance, home advantages, environment, and other elements affecting progress. So, however well we may grade our pupils, their native differences will cause the distance between the better and the poorer scholars to increase every week. It would be a sin to try to keep a class together for a long time, because it could be done only by straining the weaker and suppressing the stronger. Practically, those below the average set the pace to which all others must conform.

Special classes for bright pupils.—Again, some pupils do well in all subjects but one—usually arithmetic or grammar. To require such a pupil to review the several studies in which he does well for the sake of one or two in which he does poorly is not permitting him to use his time to the greatest profit; but this is nearly a necessity in a graded system. To remedy these difficulties, rooms for individual instruction have been opened in our large grammar schools in which the ambitious and capable pupils who wish to gain a grade are permitted to receive individual instruction, and by the aid of the special teachers accomplish the essential portions of work between the two grades and are promoted to the regular class in a higher grade, while those who have failed in one or two studies have the opportunity of entering, if sufficiently earnest, and devote special effort and extra time to the subject in which the deficiency appeared and so regain lost standing.

The mentally deficient children.—Our latest idea is a special school for a class of pupils that appeal to our sympathies but injure our schools more than they gain good to themselves. These are the mentally deficient children, children of such low powers and aptitude that they gain very little from the ordinary graded

school. They require instruction in small groups, and need to be under the constant oversight of a teacher specially adapted for this work. This school was opened November 30, 1896, and has at present 12 girls and boys, selected from our primary grades, whose ages range from 9 to 15 years. It is hoped by this arrangement to sift out in time the entire class of abnormal children from our regular schools, and by special instruction prepare the more hopeful cases to return to the regular school.

To sum up, the essentials for the success of these schools are:

(1) A limited number of pupils in each school.

(2) Quarters away from regular school building.

(3) Special methods of discipline.

(4) Child study.

(5) The very best teachers, teachers especially apt in teaching, governing, and disciplining children.

Our schools—the regular schools, those for special instruction and discipline, rooms for individual work, special schools for backward or mentally deficient children—illustrate the fact that our public schools are increasing in complexity and adaptation to all classes of pupils.

Relation between health and mental power.—Dr. Harrison Allen, the next speaker, called attention to the fact that, in the throat passage above the palate and back of the nose there is a space which is frequently so obstructed by the presence of a soft, tonsil-like mass as to prevent the normal passage of air from the nostril to the lung from taking place. No child is healthy who habitually breathes through the mouth. The respiratory movements, for the most part, are confined to the walls of the abdomen; hence the chest does not expand, the lower ribs fall together and the tips of the shoulder blades project. Dr. Allen directed attention to the injurious effect the throat mass may exert on mental functions. The physician sees many children who possess the throat growth and yet have normal brains, yet it is certainly as true that, as a rule, each afflicted child is mentally below the average. The temper is uncertain; the memory and power of attention imperfect. Not infrequently these peculiarities are so marked as to prevent the child from holding its own with a companion of its own age, and it is found in school with younger children, or at home under special care. Graver conditions are not to be ignored. Occasionally the child is a mute or a stammerer. The temper may be so excitable as to lead to phases of destructiveness, or the child may be quite intractable. Even epileptic convulsions may ensue. Dr. Allen had no doubt that cases occur in every community of children who are classed as examples of "retarded development," of "juvenile depravity," or of "destructive mania," where the real cause of the distress is not within the brain, but in the roof of the throat passage. He felt, therefore, that the attention of teachers and boards of management should be directed to these facts. Fortunately, the remedy is one easily and safely applied. It is to remove the throat mass by an operation. While not all phases of brain arrest or perversion of mental function are to be connected with the growth, yet an enormous mass of unrelieved distress is to be associated with it.

Dr. Allen was of the opinion that in all plans to educate the young systematic care of the throat passages should form a part, and particularly that every backward or defective child should be the subject of an expert medical examination before it is deprived of the privilege of education to which it is entitled.

Character building in education.—Miss Mary C. Wister followed Dr. Allen and said:

The side of the question to be treated by me is what kind of training is required by children who are unfitted for school life as it exists to-day; particularly the children disqualified by their own incapacity for mental effort, by what is known as incorrigibility, or by extreme poverty. No one would attempt to make students of such children. Some one should attempt to make of them honest, industrious

men and women. A fraction of the appropriation now expended upon the department of charities and correction, if transferred to the establishment of special classes for such cases, would not be needed by that department in the future, and how much better spent!

At present the children of well-ordered homes receive the additional benefit of fine mental training. The child without advantages of any kind gets none. To those unfamiliar with such conditions, the child obliged to obey nothing but the dictates of his own lawless will for twenty-four hours a day, is too unapproachable a problem to be considered. Even at this late day, with all the inventions of the modern mind to prevent all the things which should not be (in this most philanthropic of cities), this child is allowed to roam our streets unmolested, except where private effort has reached him for a few hours a week, or one or two big societies have whisked him off to the country. Occasionally some one, who sends coal or clothes to his mother, remonstrates, and then the child is entered at a primary school, to stay—if it appeals to him at all—until suspended, in the course of which proceeding every one has assured him that he is a remarkably bad boy—a reputation that he not infrequently exemplifies later on. We all know such cases, and, fortunately, many of them by reason of a different environment, for a few hours each day, or the influence of some individual, turn the corner and start along the high road of hard work and self-respect.

Children of the poor.—These children of the very poor do not deserve the hard names often used to describe them. They are not heartless. They are not stupid. They live up to their own standard of what is right, as well as many persons with better reasons for so doing. Their vices are surprisingly few, their surroundings considered. Their virtues, under the circumstances, are many. Yet such children are likely to become a burden upon the State or unprofitable, unsatisfactory citizens at best, unless brought under some powerful influence for good.

You say that these children need education. They do! They are in greater need of something, which—for want of a better name—I shall call civilization. Above everything else, these children lack two qualities most essential to the modern man, without which he is fitted only for a more primitive state of existence than the city of to-day. The qualities I speak of are application and self-control. Without self-control a child can not sit still on a chair. Without application he can not learn the A, B, C. And now we reach the point of how the child—who can not study, work or even play consecutively—may be turned into a law-abiding citizen. Our subject, as we now view him, represents a point of view in which antagonism to everything and everybody is the leading feature. Not knowing how to control or apply himself, he does not enjoy any of the occupations that attract the disciplined minds of his neighbors who go to school, and he is in constant dread of having his freedom curtailed. Therefore, his youth is passed in keeping out of the way of every one, from the policeman up and down. There is one thing to be remembered before condemning this child as a hopeless case, which is, that any child will apply himself to study when he wants to learn. The whole trouble with this particular kind of child is that, while left in an untrained condition, he does not wish to learn. The remedy is simple. Change his point of view. And nothing will be gained by spending a moment upon training of any kind that does not lead to this result.

How the awakening comes.—There are, for example, three ways of treating a child's dirty face. The first, to wash it for him; the second, to compel him to wash it (in the majority of institutions this is done); the third, to make him wish to have his face clean. I do not claim that this is a quick method, but it is the only one that will give a child a clean face for life, and a clean face is followed by a clean character and a clean name more often than is commonly supposed.

Perhaps a room in which a boy is not obliged to do anything is the best place for one who wishes to do nothing to take his first lesson; a place where, as long as he

disturbs no one, no one disturbs him. He has taken the first step in the right direction when he has settled down in a quiet corner to do what thinking he is capable of and to observe for himself that other children are on the alert for teachers to talk or play with them. And, although he can not quite understand why, the other children, who don't want the teachers to let them alone, seem to be having the best of it. The child sits and watches, and must be allowed to sit and watch until the awakening comes, as come it will. Sooner or later he comes forward to join the rest. The days of compulsion are past and he is ready to learn something of his own accord. At this stage, what he learns being altogether a secondary matter, the child is given as wide a choice of simple occupations as possible and character training begins.

Without knowing the reason, the world he faces seems suddenly changed to a world of friends, for everyone is ready to help him in the accomplishment of his new ambition, and his heart is ready to take in the influences for good which are already making themselves felt.

Training in self-control.—People seldom realize how easily the untrained mind, when turned in any direction, may be guided and controlled while being taught to guide and control itself, and to do this is the mission of the teacher. There are a multitude of things for the child in question to learn. Manners come first. Not to wear hats indoors; not to roll on the floor during a lesson; not to throw things at his teacher, and many demonstrations of a like nature which would make him an unwelcome addition to the well-managed schoolroom. Next come the principles of right living, but these can not be taken up until our boy or girl has learned enough self-control to sit still and listen when spoken to. The sense of responsibility is, to my mind, the entering wedge by which right ideas and ideals may be taught. How can we impress the necessity for telling the truth upon the undeveloped child? Only by obliging him to act it; by showing him that, keep his word and live up to it he can and must. Upon this standard of conduct does his future reputation depend, a standard within the possibility and comprehension of all; a standard by which all children are judged alike and alike are judged by all concerned in a character school.

Then our boy must learn to work for his living instead of begging; to save his pennies for the day when his face will always be clean and he will wish to wear a collar. He must not tease deformed or little children; he must not expect more than his share of things, and be willing to give away part of that if necessary; he must at all times be ready to help others in whatever way he can, and remember to do such things without being told.

And these are the lessons that teachers in character schools teach, while the child sings a song, plays a game, or listens to a story, unconscious that anything has happened, except that he has found someone who wants to see him all the time, who cares about what he does, and believes (he has absolute confidence in her word by this time) that he is going to make one of the best boys she has ever known. Such an experience as this brings many changes with it. In time it brings application and self-control, varying of course in degree with the child's capacity, fitting him for school life and that larger school—the world. If this city, in neighborhoods where such children abound, would open preliminary character-training classes, preparatory to the lower grades, we should hear less about children out of school, require less money to enforce the compulsory law, and be rewarded by upright, patriotic, self-respecting citizens.

The recognition of the individual.—The next speaker, Dr. J. Madison Taylor, made a plea for the recognition of the individual in physical and mental treatment, and said that the first important thing in dealing with a child as an individual is to get some knowledge of his home atmosphere, particularly the mental and moral attitudes of the father and mother. The mother is the more important, because more constantly in association with her children. The father is not to be

ignored, however, because of his great influence for good or evil, his boys and girls looking up to him as a sort of superior being, the representative of authority. The average mother, while not educated to be a mother, must be taken as she is found. Next to the parents, the social environment in which the children live must be considered. While truth is truth the world over, yet what passes current for truth among the humbler class is very different from what is truth among the upper classes, and so, indeed, is selfishness. Teachers must bear in mind that the average mental concepts of children are less high than would be supposed from the apparent intelligence of their speech. The child will use language glibly enough, and yet have a meager knowledge of the meaning of the words. Dr. Taylor then made some suggestions as to how to approach the average child. Long experience had taught the speaker that much the best method is to treat the child as an individual, much like one would treat one's friends. To examine the mentally deficient child one must be careful to avoid circumlocution. When the child is suffering with physical defects or bodily ailments the mind reacts slowly, the apprehension is enfeebled, and the child appears to have a dull mind. The removal of the physical trouble will make a marked difference in the child's mental products.

The psychological and pedagogical problem of treating special classes of children.—Dr. Lightner Witmer, of the University of Pennsylvania, said:

Are there children in the public schools that require more individual treatment than can be given by the teacher of graded classes? If so, what can the public-school system do to supply the treatment that is necessary? The psychological problem concerns itself with the discovery of such cases as reveal on examination deficiencies that the present teaching force, as now organized, can not cope with. The pedagogical problem calls for a determination of the most effective methods to be employed by the public-school system in meeting this demand.

We teachers know that children differ greatly in mental and moral capacity. We try as far as possible to keep the members of a class together, and in doing this we grade according to age and examination average, and yet I believe that your experience is identical with mine, and confirms the opinion that a class of children, no matter how homogeneous the material may be, falls into three groups, or perhaps four. There are always a very few exceedingly bright and able members of the class. This section, the teacher is frequently told, can get on well enough by itself. These able intellects and effective moral characters generally get a minimum from the school curriculum. Unfortunately they are neglected, and it is not to be wondered at if later in school life they drop down below their relative level through the enervating effect of the daily dullness of the class room. Then there is another class at the opposite end, also not large in number, composed of the indifferent, lazy, or stupid boys, who drain the energies of the teacher, and by whom the teacher is unfortunately compelled to measure his efficiency. Lastly, there is the great middle section, composed of 50, perhaps of 60 or 75 per cent of the members, and divisible into two groups, one above and the other below an average.

Perhaps the same thought has occured to you that impressed itself upon me when a teacher in a preparatory school in this city, that the greatest improvement in school work would come from separating a class into three groups. I should like to have taught separately the three groups into which I could divide my classes, and to have treated them by radically different methods. I always regretted that, owing to the class system, they were not obtaining the best that I could give them, nor were they doing the best that might be expected of them, because so many of them were compelled to adjust themselves to a class of students to which they did not belong.

This rough estimation of individual differences within a class must be supplemented by careful examination, if we are to determine with security those pupils

that depart most markedly from the average of the class, and if we are subsequently to discover exactly wherein this departure is manifested, ascertain its causes, and finally suggest proper methods of treatment. Such an examination, if thoroughly made, should have due regard to hereditary tendencies, whether these be physical or mental, to the age and the condition in life of the pupil, to weight, height, lung capacity and muscular force, to hearing, to vision, to speech, to the rate of movement, to reaction time, to the time required in simple mental operations, to powers of attention, memory and imagination, to will power, and to moral characteristics.

If such examinations be carefully conducted, it will be found that there are now in the public schools many cases that depart widely from the average. Their defects are such that they need careful treatment if they are not to fall still more below the level of their fellows in the progress of life.

These children may be grouped into several classes. I have met with children in the Philadelphia schools who belong to each of these classes. The defects of some of them have been observed by their teachers; others have entirely escaped the teacher's observation. First, this class comprises those children who present moral characteristics that render their treatment in large classes impossible, no matter what the cause of moral deficiency may be. Second, those who are mentally and physically much below the normal child of the same age. These two classes of children alone comprise at least one per cent of the present school population. For their own benefit, as well as for the benefit of their teachers and fellow pupils, these classes of children should be instructed in special schools, equipped with a better-paid and more broadly educated teaching force than is needed for the average children found in the public schools Third, children who have defective hearing. I could cite case after case of children who have been called stupid, or inattentive, or lazy, or bad, merely because they could not hear what was said to them by their teachers. One child of the ninth B grade left school, and only discovered after he had tried to run an elevator that he was unable to hear a bell. He is now under treatment by a specialist for a defect of hearing which should have been corrected long ago. If this had been discovered in time, he would have had the opportunity of enjoying the education that the city is supposed to extend to all its children. Fourth, children whose powers of vision are defective. This, again, is a very numerous class, and I could cite many instances. One case is that of a boy who for years has seen double and the page of whose reader was so blurred when he looked at it that only with the greatest difficulty could he distinguish one letter from another. He is in the tenth B grade and is 14 years of age, but reads about as well as a boy who is half way through the first reader. That he stands as well as he does is an evidence of unusual industry on his part. That his defect was not sooner discovered is an evidence of the immediate necessity of proper examination of all children for the discovery of possible eye defects. This boy's eyes were treated by an oculist. He is now being taught to read and spell by one of his former teachers and by myself, because the school system makes no provision for such cases as his. The Penn Charter School, of this city, has taken a most advanced stand in this matter, requiring all boys in attendance to be thoroughly examined by specialists. Many defects of eyes and ears were found sufficiently serious to interfere with the school work. Fifth, children who have defects of speech. Proper articulation is not only necessary to convey ideas to other human beings; it is essential also for the harmonious development of the mind. A child with a defect of speech is liable to grow to be a mentally defective adult.

The pedagogical remedy is to be found in the establishment of special or ungraded schools for those classes of children that may be called disciplinary cases and for those of generally deficient mental development, and, secondly, in some provision by the proper school agencies for the discovery of cases of defective powers of

hearing, sight, and speech, and for the pedagogical treatment of the backward mental development consequent upon such physical defects.

Philadelphia's need of special schools.—Dr. Edward Brooks, superintendent of public schools, concluded the discussion, as follows:

There are several special schools under the control of the board of education but none belonging to the elementary grades, unless the James Forten School may be so regarded. We have children in our city of many different nationalities and of varying social and intellectual conditions, and it has been suggested that special schools be provided for them; but it does not seem to me to be necessary. A slight modification of the general curriculum, with an emphasis upon the industrial element of education, is desirable; but no new or different organization from that of our general elementary schools is needed to meet these conditions. The colored children, the Italians, Hungarians, and Russians all need the same general training for intelligent and industrious citizenship. The methods of teaching should be varied to suit their conditions, but no new organization into special schools is needed.

If special schools are desirable in connection with the system of elementary education, they should probably embrace two classes of pupils; first, those of low power and aptitude of mind who can not advance as rapidly as the other children; and second, those who are confirmed in truancy and stubborn disobedience. In respect to defective children, there are not enough of them in our schools at present to collect them into a distinct class; and it might be considered a remedy of doubtful expediency to take the small number now in our schools and place them in classes by themselves. The association of the weak-minded with strong or normally minded children is an advantage to the former, and so long as the number is small they are no special disadvantage to the normally minded pupils. Very serious cases of this kind should be placed in institutions similar to that of Elwyn, so long under the special care of Dr. Isaac Kerlin.

Not many troublesome pupils.—So far as pupils guilty of truancy and stubborn disobedience are concerned, we have so few of them as not to call for any provisions for special schools. Under our present system we have but little knowledge of truancy, for, without any compulsion in the matter of attendance, the boy whose parents can not compel him to attend school is on the street without the knowledge of school authorities. That there are hundreds of such boys who ought to be in school can not be doubted; but teachers have no official knowledge of it. So also in respect to inveterate disobedience; the boy of this kind who enters school is borne with for awhile, until the patience of teachers and school board is exhausted, and at last dismissed from the school, graduating often, no doubt, into the penitentiary.

Two years ago our State legislature passed a law providing for the compulsory education of the children of the Commonwealth. This law will probably be amended at the coming session of the legislature so that it can be put into execution. Then will come a new state of affairs in our public schools that will demand new arangements to meet new conditions. When all the children are compelled to attend the public schools we shall meet with cases of inveterate truancy and stubborn disobedience beyond the control of teacher or parent. To turn these boys on the street will be a menace to social order. It will, therefore, be the duty of the city to provide for their education, for the provision of a special school for the education of those boys is cheaper than the penitentiary for them when they become men.

Several cities where the law of compulsory education has been in force for some time have found it their duty to provide for this class of children. The special schools of Providence, described by Mrs. Esten, are, as she has stated, fulfilling a very important mission in her city. I have been deeply interested in her

description of them, and I believe the system is worthy of the careful consideration of educators. With so large a number of them in a comparatively small city it would seem that their schools are not restricted to incorrigible children unless the school population is unusually inclined to truancy and insubordination. It is, of course, a question whether the association of these children, unless they are extremely vicious, with obedient and refined children might not be an advantage to the former without any special disadvantage to the well-behaved children, so long as the number of defective children is insignificant. From present information there seems to be but a sprinkling of these children in our schools, and not enough in any neighborhood to make a special class for them. I propose, however, to make an early investigation to determine more accurately the number of such defective children in the schools, that I may be able to express a more definite opinion in respect to the establishment of special classes. Whether there will arise a demand for special schools for this class of children in our city when an education becomes compulsory is a question for the future to determine.

Provision for truant and disobedient pupils.—For a more confirmed class of truant and disobedient children there is no doubt we shall be called upon to provide. Boston is just entering upon this experiment with an institution called a Parental School. The necessity of this school is emphasized in Superintendent Seaver's report for 1895, in which, in referring to the school being ready to receive pupils, he remarks: "This is a welcome announcement, for it must be said that the state of things that has existed in relation to truants the past few months could not be endured much longer without grave peril." "Some truants," he continues, "have already ripened into criminals and have been sent down to the House of Reformation on criminal complaints; others—the greater number—have not been dealt with at all, because the Parental School was not ready to take care of them."

This experiment in Boston of a Parental School will be watched with great interest by the educators of the country. It was first proposed to call it a truant school, but the name was changed to the more appropriate and suggestive one of Parental School, indicating, not the provision of penalties for disobedience, but rather that fatherly care and guidance that lead to virtuous habits and an upright life.

Parental School of Boston.—The school is to be situated, as stated in the words of the law, "on the mainland, at some place removed from institutions occupied by criminal or vicious persons." It is entirely distinct from the Home of Reformation, the two belonging respectively to great, but distinct, functions of the State, the one being penal and the other educational. The law provides that the educational authorities, in case of uncontrollable truancy and disobedience, shall apply to the courts in order to remove boys from the control of their natural parents and place them under control of the parental schools. Before the establishment of this school incorrigible boys were sent to the reform school called the House of Reformation, where they were placed with the criminal classes, an institution in many cases which was a school of vice to them. The danger of this course caused the authorities to delay the coercive treatment of incorrigible boys until, as Superintendent Seaver remarks, "truancy ripened into positive criminality." By earlier commitments to the Parental School the first steps in crime will be prevented, and many boys, it is believed, will be saved from being sent to the House of Reformation.

The Parental School is to be in no sense a penal institution, designed to inflict penalties for truancy, but a school in which boys may be induced to remain by virtue of the attractive environments that may be thrown around them. The object is to make the school so attractive and surround the boys with such influences—with a minimum of coercion—as to develop the spirit of self-respect and intelligent self-control. It is hoped that the school will create a spirit and atmos-

phere of its own that will exercise a reformative influence upon all who come within its walls.

Incentives to good behavior.—As an incentive to good behavior it is proposed to apply to all who are committed to the Parental School the principle of the indeterminate sentence, so that though a boy might be committed for two years, his term could be shortened through good behavior and the manifestation of the right disposition. A system of licenses has been prepared whereby boys appearing to have acquired habits of regularity, punctuality, and self-control after six months' residence, shall be permitted to return to their homes on condition of attending the day schools regularly and behaving properly, which seems to be in accordance with the correct laws of reform.

This institution is provided exclusively for boys, but Superintendent Seaver recommends that a similar institution be established for girls. "Evidence enough," he says, "to convince the most skeptical of the need of such a school could be gathered from the principals of girls' schools and from the truant officers. Until this need is met," he continues, "it can not be said that the educational authorities of the city are doing their full duty by the wayward and morally exposed girls under their care."

We have not met this condition of affairs in our schools under the system of voluntary attendance. But if the law of compulsory education shall force all classes of girls into our schools we shall no doubt find cases of such abnormal moral conditions arising from heredity and vicious surroundings that a parental school for girls may become a necessity in our city.

I have referred quite freely in this discussion to the experiment about to be made in Boston, because they have already been confronted with the problem and have been working toward its solution for several years. I close my paper with another extract from Superintendent Seaver's report, which shows the relation of parental schools to the system of popular education and the necessity of their existence. "The State," he says, "has undertaken for its own protection to make education universal. To make education universal it must be made free, and it must also be made compulsory. Therefore no system of public education is complete without schools for truants, wherein are used the last resorts of compulsory education. When these fail, and not until then, can children rightly be surrendered by the educational to the criminal jurisdiction of the State."

In other words, it is only after the school has exhausted its power for reform that the prison shall be resorted to for punishment or protection. Only after the school shall have failed in its endeavor to train boys to virtuous citizenship should the penitentiary open its doors to protect society from the vicious and criminal classes. In another year it is probable that the law will by compulsion open the schools to many who are now growing up in ignorance and vice, and it is the hope of patriotic citizens that it may save many an unfortunate boy and girl from a life of vice and crime. Special schools of this kind will be found to be a necessity to society and the State.

An editorial of the Wisconsin Journal of Education touching upon the question under discussion may find room here, since the writer urges the establishment of separate classes for still another reason:

An ungraded department.—Among the improvements needed in many city schools is one of very great importance, if we look at the usefulness of the schools to the pupils and not merely to the perfection of the machine. An ungraded department, or in a very large city several such, could be made useful in these ways:

1. Those children who are out of grade for any reason and who therefore are thrown back into the next lower grade, or who are carried along with difficulty in

the grade for which they are only partly prepared, could have a much better opportunity for study in an ungraded department. It is true that efforts are frequently made to accommodate these children at the sacrifice of time and patience by the teachers. But the graded system is unfavorable to all who can not keep step with its regular march. Among those who are now out of grade and who need such an opportunity are those who have stayed out of school for sickness, those who have stayed out to work at home or elsewhere, those who have moved into the city from other places with a different course of study, and those idle or dull pupils who do not keep up with their grades. The mere enumeration of these classes shows that there must be many pupils who are out of grade for good reasons and whose needs ought to be carefully considered. Especially as pupils get into the upper grades of the ward schools are they apt to be needed by parents for work for irregular lengths of time. With an ungraded department such pupils could come back when not at work and at least finish the ward-school course. As it is, one or two attempts to keep up with their classes generally satisfies them that their education must close. It is very desirable that as many pupils as possible shall complete the ward-school course, which is the proper preparation for life and for citizenship. All the arguments for free schools for all children are arguments for so shaping these schools that no unnecessary barriers shall stand between the child and a good common-school education.

2. Another sort of children for whom an ungraded department is much needed are those whose deportment is so bad in the graded schools as to interfere with their own school work and that of others, and also those who frequently stay out of school without their parents' consent. These children are likely to turn out badly if simply expelled from school or allowed to drift away from it. They ought to be saved. An ungraded school with a skillful and firm teacher will save many of them from the idleness and other bad influences of the street. It is better to reform these children at home if we can rather than in a State reform school. In many cases these children are not very bad, only they have no great love for study, and the teacher has not tact or time to attract them. A little personal influence would save them, but that little is not given, for the reason that we can not get all the wisdom and patience and power of a great teacher for $30 a month. With cheap teachers we get cheap work. If this class of boys and girls are sent to the ungraded school, it will be necessary to have a man of special character and power of government as well as tact in managing and making school attractive. He must be a born teacher, but he need not be a great scholar.

Such an ungraded department ought to cost something. But it would pay, in relieving the regular schools of some hard problems and in saving the boys and girls.

SCHOOL SAVINGS BANKS.

School savings banks, also called penny savings banks, have been established in nearly all European countries during the last thirty years. They are especially numerous in France, Belgium, England, and Scotland, but less popular in Germany, Austria, Switzerland, and Italy. In Germany there are provinces and States, such as the Kingdom of Saxony, the Prussian provinces of Silesia, Saxony, and Posen, the duchies of Meiningen and Brunswick, in which every village and town has a school savings bank. In the city of Breslau thirty of the public schools have each a bank, but the grand total of

depositors and deposits is not equal to that of France and a few other countries. The first school savings banks ever established are found in Goslar (1820) and in Apolda (1833). Both towns are in Germany, Goslar near the Harz Mountains and Apolda in Thuringia.

Germany in 1896 had 1,728 school savings banks, with 227,442 depositors, which was an increase of 144 banks and 38,353 depositors over the previous year. The amount deposited in 1895 was 1,761,972 marks, or $419,349.34, while in 1896 the total amount was 4,716,440 marks, or $1,122,512.72, and the annual deposit was over a third of a million dollars.

France (according to a newspaper item accepted as authentic by the author of "XIII. Bericht des Vereins für Jugendsparkassen" in Breslau, Germany) had in 1893 more savings banks for school children than the German Empire had in 1896, to wit, 19,631, with 438,967 depositors and deposits of over 13,000,000 francs (about $2,600,000).

In *England* (according to the "Savings Bank," 1895, No. 20) the so-called postage-stamp savings banks are chiefly used by young people. In 1894 there were given out 133,000 savings cards at 1 shilling each and 69,500 at 4 shillings each. This gives a total of 419,220 shillings, or about $105,000. This manner of fostering thrift is introduced in 2,770 schools, or an increase of 279 schools over 1893. But there are also penny banks in 155 schools. Deposits are called for at stated periods by postal clerks and sent free of charge to the nearest general post-office. Two hundred and ninety-seven schools availed themselves of this generosity. The report of the department of public instruction for England and Wales for 1893–94 states that 8,548 schools have made provision for saving, an increase of 2,165 schools over the previous year. In Scotland 150 schools and in Ireland 130 schools have established banks during the year. These two states have altogether over 4,000 penny savings banks connected with schools. In 1894 there were distributed 275,000 bank-deposit books and 107,000 postal-savings cards.

Belgium.—L'Étoile Belge states the number of school savings banks in the kingdom to have been 5,282 in 1893. The total number of schools is 8,040. Of the whole number of pupils, to wit, 964,354, as many as 195,441 have bank books. To this number should be added 44,864 children whose savings amount to less than 1 franc in each case, and who are, therefore, not yet entitled to a bank book. Hence the whole number of children who save is 240,305, or an increase of about 20,000 over the previous year. The total amount of deposits was 5,165,228 francs, or $1,033,000; about one-half of this is to be deducted as having come from adults and pupils of secondary schools. The latest report shows an increase of 650,000 francs, or $130,000. The boys seem more inclined to save than the girls. In Germany and

other countries the reverse is found. Belgium had 131,485 boys and only 108,820 girls who deposited their savings, while the enrollment showed that there were only 50 fewer girls than there were boys in school. The Independence Belge, however, states that the 16 girls' schools in Antwerp had, in 1894, a larger deposit than the 18 boys' schools of that city.

Switzerland.—Local reports gleaned from newspapers prove that the idea of school savings banks is making commendable progress, but the federal statistical bureau reports that in 1896 only 280 primary or elementary schools had savings banks; 24 are about to establish them, and in 23 schools the banks have been abandoned. The entire canton of Zürich has only 20 such institutions.

Italy.—The report for 1890 indicated a large increase for the year 1888, since then the number of juvenile depositors and their deposits have decreased. The following numbers show this.

Year.	Depositors.	Deposits.
1888	.....	496,564 lire, or $99,300
1891	103,109	445,555 lire, or 89,100
1892	100,972	408,316 lire, or 81,660
1893	95,607	395,444 lire, or 79,000

Austria-Hungary.—There are no recent reports concerning school savings banks in the Austrian Empire.

United States of America.—Mr. J. H. Thiry, in Long Island City, N. Y., reports that on March 16, 1895, there were 323 schools in the United States in which 1,579 class-room savings banks were in operation. These schools are found in 83 cities. The number of depositors was 30,921, and the deposits amounted to $402,020.90, and withdrawals to $244,856.74, which left $157,164.16 in the banks. This does not give a correct statement, inasmuch as in 14 schools the deposits are footed up since the establishment of the banks. The reports of 20 schools were missing, and a previous statement was made in footing up the totals. However, since 1890, when 209 schools with 1,110 banks were reported, commendable progress is noticeable, for the number of schools having banks is (in 1896) 323, while the number of depositors has increased from 24,067 to 30,921.

In the Journal of Education (Boston) Mr. Thiry published (July 8,1897) a list of school savings banks in the United States, which is here reproduced.

School savings banks in the United States.

[Compiled by J. H. Thiry, of Long Island City, N. Y.]

Place.	Banks.	Date of introduction.	Depositors.	Amount.		
				Collected.	Withdrawn.	Due depositors.
Long Island City, N. Y	115	1885	2,018	$62,531.30	$42,987.66	$19,543.64
Rutland, Vt	28	1886	995	4,967.92	1,821.40	3,146.52
Islip, Long Island, N. Y	5	1886	80	3,365.38	2,809.09	496.29
Amsterdam, N. Y	50	1887	450	25,142.91	18,591.32	6,551.59
Jamestown, N. Y	70	1888	918	12,388.64	9,142.98	3,245.66
Kingston, N. Y	7	1889	283	2,033.49	62.02	1,971.47
Olean, N. Y	34	1889	950	13,450.00	8,615.00	4,835.00
Brooklyn, N. Y., School 31	18	1889	260	2,261.58	2,101.67	159.91
Pottstown, Pa	55	1889	656	41,045.27	33,403.96	7,641.31
Norristown, Pa	59	1890	1,390	39,082.64	24,923.32	14,159.33
Shannonville, Pa	2	1890	6	138.93	85.08	53.85
Cheltenham, Pa	4	1890	78	2,230.04	1,268.96	961.08
Chester, Pa	67	1890	835	31,500.60	23,341.76	8,158.84
West Chester, Pa	24	1890	742	10,893.66	3,140.74	7,752.92
Williamsport, Pa	96	1890	875	20,872.12	9,875.13	10,996.99
Conshohocken, Pa	15	1890	312	8,030.70	5,228.16	2,802.54
Philmont, N. Y	5	1890	25	945.16	208.00	737.16
Brookline, Mass	13	1890	1,364	22,864.28	20,364.28	2,500.00
Greenville, Ohio	20	1890	594	3,325.75	2,968.73	357.02
West Whiteland, Pa	4	1890	45	395.90	30.00	365.90
Doylestown, Pa	8	1891	248	6,929.50	3,974.10	2,955.40
Rockland, Me	10	1891	290	1,800.46	1,730.46	70.00
Campello, Mass	13	1891	292	5,545.96	3,750.33	1,795.63
Warren, Pa	31	1891	800	8,900.51	2,339.84	6,560.67
Brookville, Pa	11	1891	150	2,333.00	1,070.82	1,262.18
Mayville, N. Dak	3	1892	125	405.00	75.00	330.00
Camden, N. J., Boys' Parlor	1	1892	86	26.79	5.36	21.43
Parkesburg, Pa	6	1892	47	1,489.79	1,348.81	140.98
Phœnixville, Pa	26	1892	385	6,746.13	2,843.67	3,902.46
Coatsville, Pa	13	1892	190	2,640.00	1,066.25	1,573.75
Ashbourne, Pa	4	1892	90	1,737.57	457.42	1,280.15
Jenkintown, Pa	7	1892	204	1,530.44	932.86	597.58
Portland, N. Dak	1	1892	36	180.59	86.95	93.64
Anselma	2	1892	14	51.70	----------	51.70
La Mott, Pa	3	1892	57	222.22	55.36	166.86
Edge Hill, Pa	2	1892	45	386.43	101.10	285.33
Ogontz, Pa	3	1892	55	412.95	40.25	372.70
West Pikeland, Pa	4	1892	18	89.88	----------	89.88
Caledonia, N. Dak	1	1892	18	34.48	8.74	25.74
Unionville, Pa	5	1893	33	378.32	68.00	310.32
Westboro, Mass	15	1893	394	3,887.95	1,247.81	2,640.14
Strafford, Pa	3	1893	43	311.99	20.21	291.78
Lower Merion District, Pa	22	1893	357	2,206.39	566.47	1,639.92
Eddystone, Pa	3	1893	50	701.56	688.77	12.79
Trinidad, Colo	18	1893	350	2,280.20	610.06	1,670.14
Geneva, N. Y	8	1893	416	5,458.91	775.56	4,683.35
Collegeville, Pa	1	1893	20	327.39	128.44	198.95
Morrisville, Pa	6	1893	112	550.00	42.50	507.50
Cooperstown, N. Dak	2	1893	66	189.06	130.84	58.22
Forman, N. Dak	1	1893	25	55.49	24.92	30.57
Wahpeton, N. Dak	3	1893	57	69.05	33.49	35.56
Gloucester, N. J	12	1894	200	87.11	17.42	69.69
West Chester (Normal), Pa	1	1894	29	109.45	3.83	105.62
West Pittston (Trinity Ind. School), Pa	1	1894	274	451.23	168.51	282.72
Carr, Pa	1	1894	18	45.64	4.23	41.41
New Centerville, Pa	1	1894	14	36.05	36.05	----------
Salem (Ind. School), Pa	1	1894	10	45.72	54.72	----------
Berwyn, Pa	1	1894	13	67.29	7.70	59.59
Howellville, Pa	1	1894	12	19.36	7.70	19.36
Presbyterian, Pa	1	1894	5	9.15	7.70	9.12
Paoli, Pa	1	1894	13	21.39	7.70	21.39
Glassboro, N. J	8	1894	177	1,150.13	251.24	907.89
Grand Rapids (Public School), Mich	259	1894	4,811	10,849.24	4,725.94	6,123.30
Ithaca, N. Y	15	1894	330	688.07	220.75	467.32
Stockton, N. J	29	1894	294	1,357.55	231.51	1,126.04
Grafton, N. Dak	8	1894	106	89.39	5.22	84.17
Delair, N. J	2	1895	35	63.71	12.74	50.97
Hammonton, N. J	10	1895	113	538.43	50.00	488.43
Merchantville, N. J	4	1895	200	619.31	123.86	495.45
Grand Rapids (St. Mary Parochial School), Mich	8	1895	182	588.61	231.57	357.04
Honesdale (Grace Church Ind. School), Pa	1	1895	102	189.88	5.99	183.39
Pensauken, N. J	2	1895	50	132.65	22.53	110.12
Camden, N. J	194	1895	3,537	14,133.84	2,826.77	11,307.07
Atlantic City, N. J	44	1895	1,075	3,469.34	389.60	3,079.74
Haddonfield, N. J	10	1895	285	839.48	61.80	777.68

School savings banks in the United States—Continued.

Place.	Banks.	Date of introduction.	Depositors.	Amount.		
				Collected.	Withdrawn.	Due depositors.
Grand Rapids (St. James Parochial School), Mich	4	1895	172	$114.17	$31.75	$82.42
Grand Rapids (St. Andrew Parochial School), Mich	8	1895	171	350.98	39.70	311.28
Grand Rapids (St. Adalbertus Parochial School), Mich	8	1895	196	234.35	63.91	170.44
Walkers, Pa	1	1895	7	57.03	14.47	43.46
Fallsington, Pa	3	1895	18	55.32	14.47	55.32
Pittston (Presbyterian Ind. School), Pa.	1	1895	52	62.10	14.47	62.10
New Hope, Pa	3	1896	61	102.54	14.47	102.54
Philadelphia (Pennsylvania Sowing School), Pa	1	1896	40	17.04	1.28	15.76
Total	1,579	.....	30,921	402,020.90	244,856.74	157,164.16

NOTE.—It is suggested that only in a small number of States is the savings-bank system on a basis justifying a teacher or school officer in taking the responsibility of advising depositing in a particular bank, while in European countries the Government, through postal savings banks or otherwise, guarantees safety of the deposits.

ATTENDANCE IN BOYS' HIGH SCHOOLS IN THE KINGDOM OF PRUSSIA.

Prussia, the largest of the 26 States of the Empire of Germany, has a little more than three-fifths of the population of the Empire, 31,849,795 according to the census of 1895 (about one-half of the population of the United States according to the census of 1890). The population of the Empire of Germany was 52,246,589 in 1895.

The following table shows the number of boys' high schools of the six varieties in existence in Prussia, and the number of students attending them. These data are given for a number of years, dating back to 1830. The changes that have taken place within sixty-five years are very noticeable. While in 1830 the Kingdom had only 133 classical high schools (gymnasia), in 1895 there were 274 classical, 91 modern, and 86 mixed high schools, or 569 in all, with the incomplete institutions. The number of students has risen from about 35,000 in 1853 to 150,548 in 1895, or nearly 400 per cent within about forty years.

To explain the shifting from classical to modern schools, it may be stated that the gymnasia and progymnasia teach Latin and Greek and one modern tongue in addition to mathematical and natural sciences, history, geography, drawing, music, etc. The real-schulen teach no ancient but two modern languages, while the real-gymnasia are mixed institutions, in which Latin and two modern tongues are taught, but no Greek. The headings of the different columns state for what professions the schools are preparatory institutions. With these facts before us, we see that the modern high schools have increased greatly, while the classical schools have barely kept up with the increase of

the population, and have even decreased during the last eight years. This is explained by the overcrowding of the learned professions and the new demands which modern industry and commerce make.

No special schools are included in the table, that is, no secondary, technical, commercial, industrial, agricultural, or trade schools. The table includes only schools belonging to the State system of general education, i. e., general culture schools preparing for higher study in universities and technological institutions.

One reason for the increased attendance upon secondary schools in Prussia is that students of any secondary school (including normal schools), serve in the army only one year instead of three years, if they pass successfully through the first six grades. Another cause of the increase is found in the greater demands life makes upon trained intelligence, and the Prussian Government has ever been alive to these increased demands.

The following ratios are obtained from the totals of the year 1895:

Prussia had one classical high school for every 100,125 inhabitants, and 398 classical students to every 100,000 inhabitants.

Prussia had one mixed high school to every 212,322 inhabitants, and 88 students of such schools to every 100,000 inhabitants.

Prussia had one modern high school for every 349,997 inhabitants, and 93 students of such schools to every 100,000 inhabitants.

Taking the schools together, we find that Prussia had in 1895 one high school of some kind for boys to every 55,975 inhabitants, and 212 students in every 100,000 inhabitants.

The table presented below includes only boys' schools. There are not as many separate secondary schools for girls in Prussia, called "höhere Mädchenschulen," nor are they of such high grade as the boys' schools. Their course rarely goes beyond the eighteenth year of the pupil's age, but they are high schools in the American sense of the word. Exact statements of attendance are lacking, for they are mostly private schools. The number of girls in secondary schools is estimated at not less than 100,000.

This brings the number of students in secondary schools to 250,000. If we add to this the number of students in special schools, such as technical, industrial, trade, commercial, and agricultural, as well as normal schools, the total goes beyond 300,000, or 1 per cent of the population. Statistics have shown that one-fifth of the population in Germany, also in Prussia, is attending school. This raises the percentage of secondary students to 5 per cent of the population in school. It is doubtful whether the ratio can be found in any other country, unless it be in the United States, where many colleges might be classed among the secondary schools.

Attendance in boys' secondary schools of the Kingdom of Prussia.

Year.	Gymnasia, or classical high schools, preparing for the study of law, theology, medicine, philosophy and technology. Course, 10 years.		Progymnasia, or incomplete gymnasia; the higher grades are wanting. Course, 6 to 8 years.		Realgymnasia, or classical and modern high schools, preparing for the study of philosophy, medicine, and technology. Course, 10 years.		Prorealgymnasia or incomplete real gymnasia. The higher grades are wanting. Course, 6 to 8 years.		Higher realschulen or modern high schools preparing for technical pursuits. Course, 9 years.		Lower realschulen or modern high schools preparing for lower technical pursuits. Course, 8 years.		Total.	
	Schools.	Students.	Schools.	Students.	Schools.	Students.	Schools.	Students.	Schools.	Students.	Schools.	Students.	Schools.	Students.
1830-31	110	(?)	23	(?)	0	0	0	0	0	0	0	0	133	0
1837-38	113	(?)	34	(?)	0	0	0	0	0	0	0	0	147	0
1846-47	116	(?)	28	(?)	0	0	0	0	0	0	0	0	144	0
1853-54	121	33,036	28	2,796	0	0	0	0	0	0	0	0	149	0
1859-60	135	37,746	31	2,614	30	12,317	11	1,831	0	0	27	7,705	234	54,508
1863-64	145	43,899	26	2,602	(?)	(?)	(?)	(?)	0	0	(?)	(?)	(?)	(?)
1867-68	(?)	(?)	(?)	(?)	64	22,892	65	10,130	0	0	14	4,125	288	(?)
1868-69	198	57,171	29	3,294	(?)	(?)	(?)	(?)	0	0	(?)	(?)	(?)	(?)
1873-74	218	63,207	29	3,817	(?)	(?)	(?)	(?)	0	0	(?)	(?)	(?)	(?)
1875-76	(?)	(?)	----------	(?)	80	31,680	92	17,086	0	0	17	6,898	(?)	(?)
1878-79	245	71,324	32	4,141	(?)	(?)	(?)	(?)	0	0	(?)	(?)	(?)	(?)
1880-81	250	73,922	35	4,372	85	30,822	101	16,389	3	1,883	19	7,249	493	134,637
1881-82	251	74,085	35	4,298	86	30,457	102	16,511	12	4,206	19	7,083	505	136,730
1882-83	253	76,358	36	4,556	90	30,806	85	10,428	12	4,402	37	11,891	513	138,441
1883-84	253	77,043	36	4,648	90	30,306	88	10,520	12	4,419	35	11,908	514	138,804
1884-85	257	77,979	37	4,337	89	28,901	88	10,479	14	5,817	37	12,228	522	139,741
1885-86	259	77,718	39	4,958	89	28,623	86	10,450	13	5,380	39	13,486	525	140,615
1886-87	263	78,498	40	5,256	89	28,925	87	10,595	12	5,571	39	14,034	530	142,879
1887-88	264	78,683	39	4,981	88	29,442	89	11,069	11	5,305	44	15,892	535	145,062
1888-89	266	77,629	38	4,545	87	29,815	87	10,926	11	5,449	48	17,475	537	145,839
1889-90	267	76,537	41	4,442	88	30,245	84	10,454	10	5,301	50	18,896	540	145,875
1890-91	270	75,599	45	5,444	86	29,706	85	10,217	9	4,805	56	21,336	551	147,197
1891-92	271	74,907	44	4,908	89	29,252	85	10,085	9	4,737	56	23,081	554	146,970
1892-93	272	74,951	44	4,614	88	28,862	84	9,677	12	6,419	55	23,037	555	147,039
1893-94	274	75,266	44	4,286	87	28,402	79	8,667	20	9,826	64	22,116	568	148,563
1894-95	274	75,233	44	4,634	86	28,420	74	7,820	24	12,111	67	22,330	569	150,548

PROPORTION OF CATHOLICS, PROTESTANTS, AND HEBREWS IN SECONDARY SCHOOLS OF GERMANY.

In an article in the Akademische Revue, published in Munich, on "The proportion of Catholics, Protestants, and Hebrews in attendance upon secondary educational institutions of Germany," the following table is reduced from Professor Rethwisch's voluminous statistics in "Deutschland's höheres Unterrichtswesen im 19ten Jahrhundert."

There are in attendance upon secondary schools (i. e., preparatory schools for higher seats of learning):

	Of every 10,000 inhabitants.	Of every 10,000 Catholics.	Of every 10,000 Protestants.	Of every 10,000 Hebrews.
In Bavaria	53	42	67	370
In Prussia	45	27	50	333
In Saxony	40	23	40	357
In Würtemberg	84	53	93	500
In Baden	64	41	86	417
In Hesse	68	50	67	333

These 6 of the 26 States constituting the German Empire represent 87 per cent of the total population of the Empire.

According to the foregoing table fewer Catholics pursue a higher course of study than Protestants, and the Israelites far outnumber both.

Furthermore, Protestants and Israelites are also more strongly represented (proportionally) than Catholics in the so-called "realschulen" (modern high schools) of every German State. In these modern high schools (so named in contradistinction to "gymnasia," or classical high schools) comparison is less favorable to Catholics than in the more privileged classical schools, as the following statement proves:

In Bavaria 20 of every 10,000 inhabitants attend modern high schools and 33 attend classical high schools; that is, 13 Catholics, 29 Protestants, and 208 Israelites are found in modern high schools, and in gymnasia 29 Catholics, 38 Protestants, and 162 Israelites of every 10,000 of each of these creeds.

According to these figures in Bavaria there are one and one-third more Protestants than Catholics in the classical schools and two and one-fourth times more in schools without Latin. The Israelites outnumber the Christian creeds in the preparation of a business career, as well as in the preparatory education for professional service and the higher offices of public life.

These proportions are analogous in the other parts of Germany, as is represented in the following table:

PRUSSIA.

Of every 10,000—	Modern high school.	Mixed high school.	Classical high school.
Catholics	3	5	19
Protestants	8	14	28
Israelites	55	78	200

SAXONY.

Catholics	8	6	9
Protestants	15	9	16
Israelites	125	50	182

WÜRTEMBERG.

Catholics	21	.....	32
Protestants	50	.....	43
Israelites	320	.....	270

BADEN.

Catholics	9	12	20
Protestants	22	29	35
Israelites	117	149	151

HESSE.

Catholics	24	6	20
Protestants	30	12	25
Israelites	200	33	100

In all these States the same relations exist. Not only do Catholics attend the classical educational institutions less frequently, but they are not found in proportion to the other creeds in attendance at any kind of high school. Schools without Latin (for which modern languages are substituted) and the mixed high schools (with Latin, but without Greek) show this discrepancy in greater proportion than the classical schools (named gymnasia).

The paper quoted defines the main causes to be (*a*) the celibacy of the Catholic clergy, since the Protestant ministers' families furnish a large contingent of students to the high schools; and (*b*) the distrust which Catholics generally entertain against all kinds of State schools.

The numerical proof of quantitative retrogression of Catholics in regard to secondary and higher education indicates a qualitative disproportion in national intellectual life. The Catholics have no private institutions which could supply the apparent discrepancy. Details show an increase of the disproportion in Bavaria (as also in Prussia, Baden, and Saxony) during the period of 1863 to 1890. In 1863 the attendance at secondary schools of Bavaria showed a pro-

portion of 62.67 per cent Catholics, 34.27 per cent Protestants, and 3.06 per cent Israelites, while in 1890 the proportion had changed to 57.09 per cent Catholics, 36.09 per cent Protestants, and 6.82 per cent Israelites.

The well-known statistician, Professor Georg von Mayr, generalizes the above-mentioned data as follows:

In round numbers, out of every 10,000 inhabitants of the German Empire (excluding Oldenburg, which State does not publish statistical data of public education) 50 attend secondary schools, or 55 students of every 10,000 Protestants; 32 students of every 10,000 Catholics; 49 students of every 10,000 Dissenters; 333 students of every 10,000 Israelites; which gives an average of a fraction less than 50 for the entire population.

If a distinction be made among the different kinds of secondary schools, Würtemberg must be left out of consideration, because of the lack of appropriate data. The following result is then obtained:

Number of students out of every 10,000.

	High schools with Latin and Greek.	High schools with Latin.	High schools without Latin.
Catholic population	21.4	3	6.7
Protestant population	27.7	13.2	13.5
Dissenting population	17.7	13.2	18.7
Hebrew population	173.8	65.8	92.7
Total population	27.2	10.4	11.4

Consequently, the total population of Germany enjoys a secondary education to the extent of 50 out of 10,000 inhabitants, or 5 per 1,000; whereas, distinguishing the population by creeds, the proportion is: Thirty-two of every 10,000 Catholics, 55 of every 10,000 Protestant, and 333 of every 10,000 Israelites.

Professor von Mayr states further, that proportionately the difference is smallest in the classical schools. Not quite 28 of every 10,000 Protestants pursue the classical courses; about 21 out of every 10,000 Catholics. The Israelites alone show a strong diminution in this case as compared with the previously stated ratios, showing a proportion of nearly 174 to 10,000. The difference between Catholics and Protestants at other high schools of both kinds is relatively much greater. Combining the two kinds of schools, from 10 to 11 out of every 10,000 Catholics, almost 26 out of every 10,000 Protestants, and more than 158 out of every 10,000 Israelites pursue a high-school course of study without Greek or without either classical language.

Professor von Mayr shows, with reference to the gymnasia in Bavaria, that since 1873 the attendance of Catholics contrasted with Protestants has only slightly decreased; the attendance at technical

courses was small even at that time. He closes his article with these words:

In the struggle for existence the Catholic population of Bavaria undoubtedly needs the equipment of knowledge and power to be acquired by attendance at secondary and higher seats of learning; for by not attending secondary schools they exclude themselves from universities and professional schools. It is, therefore, the earnest duty of all concerned to investigate and establish the causes of the nonattendance of Catholics at such schools, whether the opportunity given be not accepted or whether the opportunity required be not offered by the State.

And he further says:

I should like to warn my readers not to draw immediate conclusions from the relative proportion of the different confessions upon the talent or inclination of the students, or the confession to which they belong. There are other considerations that determine the real participation in any branch of education besides talents and inclination, and among these are the ease or difficulty of attending certain schools. These are dependent upon the habitation of the parents and the location of the schools. Doubtless the residents of any place or city furnish the comparatively greatest contingent of students. Now, it must be considered that the Jewish population is nearly always found in large cities which have a variety of schools beyond the scope of the elementary schools. Hence, we find the Jewish children more frequently in secondary schools, while the Catholics are chiefly agriculturists, farmers, and the like, and live in hamlets, villages, and small towns, which do not offer such opportunities for secondary education as large cities do. Similar proportions are found where the members of one confession are preferably grouped in larger cities, as, for instance, the Protestants in upper Bavaria, where the participation of Protestants in secondary schools is comparatively larger than in lower Bavaria, where they are found both in the cities and in rural districts.

To the foregoing details another writer, Professor von Salvisberg, adds a few data taken from the Prussian educational statistics, which are of general interest.

The attendance of the different creeds at secondary schools of Prussia from 1886 to 1890–91 averages the following proportions, expressed in percents[1]:

	Protestants.	Catholics.	Israelites.
Schools without Latin or Greek, but modern languages:			
Burgher schools	73.40	17.76	8.49
Modern high schools (low grade)	66.58	17.87	15.07
Modern high schools (high grade)	78.57	14.30	6.39
Schools with both modern and classical languages:			
Mixed high schools (low grade)	77.09	16.54	5.37
Mixed high schools (high grade)	78.21	12.20	9.10
Schools with Latin and Greek and only one modern language:			
Classical high schools (low grade)	51.59	40.94	7.34
Classical high schools (high grade)	68.28	22.45	9.10
Total	70.78	20.01	8.94

[1] Compare Prussian Official Statistics, vol. 125, issued by the minister of public education, and Statistics of the Universities of Prussia for the year 1891–92. Berlin, 1895.

This showing should be completed by stating the proportion of the different creeds in the population, which is here given for Germany and for Prussia and Bavaria separately:

In 1890 Germany had 49,428,470 inhabitants, of whom there were 31,026,810 Protestants (62.8 per cent), 17,674,921 Catholics (35.8 per cent), and 567,884 Israelites (1.2 per cent).

In 1890 Prussia alone had 29,952,675 inhabitants, of which there were 19,232,449 Protestants (64.2 per cent), 10,252,818 Catholics (34 per cent), and 372,059 Israelites (1.2 per cent).

In 1890 Bavaria alone had 5,484,475 inhabitants, of which there were 1,571,863 Protestants (28.6 per cent), 3,962.941 Catholics (70.2 per cent), and 53,885 Israelites (1.2 per cent).

According to the foregoing figures the Catholic attendance at secondary schools falls short by more than one-third in comparison with the total population of the State of Prussia, and gives its share to the Protestant and Hebrew population. Israelites send almost eight times as many pupils to these institutions as would be expected from their proportion to the other creeds. If the creeds were distributed in attendance at school in proportion to the male population, there would be about 87,000 Protestant students, 47,000 Catholics, and 1,600 Jews.

The distribution of the different creeds among professional and business men is noticeable. If we take for granted that almost all who enter the higher State and municipal service are graduates of classical high schools and determine in what proportion the different creeds graduate, the percentage of classical school graduates (for the period of five years above mentioned) will be found to average 68.5 per cent for Protestants, 23.3 per cent for Catholics, and 8 per cent for Jews, or almost the same difference as is revealed in reviewing the attendance at gymnasia.

Calculating from the statistics of Prussian universities for the years 1886–1890, we find that among 100 students from German States 71.96 were Protestants, 18.73 Catholics, and 8.98 Hebrews. The correct numbers for this calculation are given below. During the above mentioned five years the universities of Prussia were attended by students from the German States as follows:

Faculty of—	Protestants.	Catholics.	Jews.	Total.
Protestant theology	2,562			2,562
Catholic theology		581		581
Law	1,706	441	193	2,340
Medicine	2,073	741	644	3,458
Philosophy	2,748	603	297	3,648
Total	9,089	2,366	1,134	12,589

These figures show the conspicuous differences existing between the nontheological faculties in reference to the three creeds. Taking

these alone and expressing the facts in per cents, we find among students from German States the following ratios:

Faculty of—	Protestants.	Catholics.	Jews.
Law	72.66	18.78	8.22
Medicine	59.72	21.35	18.55
Philosophy	74.92	16.44	8.10
Average	68.80	18.82	11.95

The participation of the Hebrews in higher education keeps pace with the advancement of the grade attained. The number of Catholics who aim at a career which implies a university course in Bavaria is apposite to Prussia also.

As stated above, the deeper reasons for this fact are not apparent and can not be statistically determined. The fact itself is defined in the following figures: During the period specified the number of Prussian students averaged 7,898 Protestants to 9,411,161 Protestant male inhabitants; 2,249 Catholics to 5,058,292 Catholic male inhabitants; 1,044 Hebrews to 182,738 Hebrew male inhabitants; 33 others to 49,960 other male inhabitants; a total of 11,224 students to 14,702,151 male inhabitants.

This goes to show that of every 10,000 male inhabitants of each creed there averaged 8.37 Protestants, 4.45 Catholics, and 57.13 Israelites; on the whole, 7.62 students. The great variations in university attendance among the different creeds permit a conclusion upon anomalous conditions. The Catholic population yields a little more than half as many students as the Protestant. The Hebrew, on the other hand, sends proportionately thirteen times as many students to universities as the Catholics and seven times as many as the Protestants. If we examine the conditions mentioned, even in a single province of the Kingdom, the freshmen from the Catholic population approach the average Protestant attendance only in Westphalia, Hanover, and East Prussia. In the other nine provinces the facts portrayed are repeated even with greater force. It appears, therefore, that a combination of manifold conditions, external and internal, economic and social, has developed permanent relations which in their effects upon the intellectual life of the nation must be far-reaching and powerful.

EDUCATIONAL STATISTICS OF THE KINGDOM OF BAVARIA FOR THE YEAR 1893-94.

The Zeitschrift des Bayerischen Statistischen Bureaus No. 4 of 1895 contains the latest educational data of Bavaria. A summary of this official publication is here given in translation, in which the

schools and other institutions of training are grouped somewhat after our American nomenclature.

A.—Elementary Schools.

I.—DAY SCHOOLS.

The number of elementary day schools in the Kingdom (population in 1895, 5,797,414) was 7,253, of which 346, or 4.8 per cent, are located in the cities (which term embraces the cities of the first rank on the right side of the Rhine and the eleven large cities of the Palatinate), and 6,907, or 95.2 per cent, in the rural districts and villages. In the previous year the numbers were 7,239 schools, of which 342, or 4.7 per cent, were situated in cities, and 6,897, or 95.2 per cent, in the country.

Classed according to the character of their administration, there were 7,203, or 99.3 per cent, public, and 50, or 0.7 per cent, private schools. There has been no change in this proportion since the preceding year.

Classed according to their religious character, there were 5,114, or 70.5 per cent, Catholic (1892–93, 5,103, or 70.5 per cent); 1,910, or 26.3 per cent, Protestant (1892–93, 1,909, or 26.4 per cent); 141, or 2 per cent, mixed schools (1892–93, 139, or 1.9 per cent), and 88, or 1.2 per cent, Hebrew schools (1892–93, the same number).

If we consider the sex of the pupils, we find that there are 6,280, or 86.6 per cent, mixed schools in all classes—that is to say, schools in which the sexes are not separated. In the previous year this proportion was 86.8 per cent. Four hundred and twenty-seven, or 5.9 per cent (1892–93, 416, or 5.7 per cent), are exclusively girls' schools; 425, or 5.8 per cent (1892–93, 417, or 5.8 per cent), boys' schools, and 121, or 1.7 per cent (1892–93, 125, or 1.8 per cent), are mixed schools in some of the grades only.

If we classify the schools according to the length of their daily sessions, we find that 6,978, or 96.2 per cent, are all-day schools; 238, or 3.3 per cent, are half-day schools, and 37, or 0.5 per cent, have a partly whole and partly half day session. The proportions for the preceding year were as follows: 6,942, or 95.9 per cent, whole-day schools; 259, or 3.6 per cent, half-day schools, and 38, or 5 per cent, mixed schools.

The number of classes in all the schools is 13,625 (in 1892–93, 13,524), of which 2,775, or 20.4 per cent (in 1892–93, 2,731, or 20.2 per cent), are found in cities, and 10,850, or 79.6 per cent (in 1892–93, 10,793, or 79.8 per cent), in rural districts. Of the total number of classes, 1,092, or 8 per cent, are parallel classes of which 941, or 86.1 per cent, are found in city schools, and 151, or 13.8 per cent, in country schools.

The total number of teachers is 24,252 as against 24,101 in the previous year; of these 13,714, or 56.5 per cent, are class teachers—i. e., teachers in charge of class rooms—(in 1892–93, 13,611) 6,124, or 25.3 per cent, are teachers of religion, and 4,414, or 18.2 per cent, teachers

of gymnastics, drawing, and female handiwork, i. e., special teachers. Of the 13,714 regular class teachers, there are 11,707, or 85.4 per cent, men, and 2,007, or 14.6 per cent, women. Of the 4,414 specialists, only 122, or 2.8 per cent, are men, and 4,292, or 97.2 per cent, are women. The 6,124 religious teachers are all men.

Classifying the 24,252 teachers according to religious denominations, we find that 17,942, or 73.9 per cent, are Catholics (12,352, or 50.9 per cent, men, 5,590, or 23 per cent, women); 6,126, or 25.26 per cent, Protestants (5,428, or 22.38 per cent, men, and 698, or 2.88, per cent, women); 179, or 0.74 per cent, Israelites (169, or 0.7 per cent, men, 10, or 0.4 per cent, women); 5, or 0.2 per cent, belong to other denominations (4 men, 1 woman).

There are 1,033, or 7.5 per cent, of the regular class teachers who belong to religious orders. Of these 28, or 0.2 per cent, are men; 1,005, or 7.3 per cent, of the whole number are women.

The total number of day-school pupils in the Kingdom was 819,565; of these 146,004, or 17.8 per cent, attended city schools; 673,561, or 82.2 per cent, attended rural schools; 402,082, or 49.1 per cent, were boys; 417,483, or 50.9 per cent, were girls; 585,210, or 71.4 per cent, were Catholics; 227,896, or 27.81 per cent, were Protestants; 5,789, or 0.71 per cent, were Hebrews; 670, or 0.08 per cent, were of other creeds.

For the previous year the corresponding numbers were 144,550, or 17.7 per cent, attending city schools; 673,039, or 82.3 per cent, attending rural schools; 400,379, or 49 per cent, were boys; 417,210, or 51 per cent, were girls; 581,908, or 71.17 per cent, were Catholics; 228,961, or 28.01 per cent, were Protestants; 6,050, or 0.74 per cent, were Hebrews; 670, or 0.08 per cent, were of other creeds.

The foregoing numbers permit a comparison which reveals (1) that the city population in Bavaria increases, though not at the expense of the rural population; (2) that the number of Catholic school children increases, while that of Protestant children decreases. The differences shown are small, but they are the result of only one year.

In 1893–94 there were 2,907,940 separate cases of absence recorded, amounting to 5,333,398 days, which is an average of 6.4 days for each child. The amount of absence during the previous year was about 6.5 days for each child. Of the 2,907,940 cases of absence, 446,247 occurred in city schools (15.3 per cent), 2,461,693 (or 84.7 per cent) cases in country schools. Since 17.8 per cent of all pupils are attending city schools, the difference is comparatively slight.

Of the total number of cases of absence only 158,862, or 5.5 per cent, were not excused, and hence the law took effect, according to which the parents were fined. In 2,086,637 (or 71.7 per cent) cases, the excuse was illness, and in 662,441 (or 22.8 per cent) cases, other valid excuses were offered and accepted.

Instruction was given in 7,538 buildings (in 1892–93, 7,511), of

which 338, or 4.5 per cent, were located in cities; 7,200, or 95.5 per cent, in the country and villages. Furthermore, 7,102, or 94.2 per cent, were school buildings owned by the communities (in 1892–93, 7,087); 436, or 5.8 per cent, were rented buildings (in 1892–93, 424). All these buildings numbered 13,909 schoolrooms, against 13,823 of the year preceding.

Tuition fees were paid in 5,502 schools, or in 75.9 per cent of the total number of schools, amounting to 1,615,417 marks, or $384,469.25. The city children contributed only 4.5 per cent of this sum, which shows that the principle of gratuitous elementary instruction is also making progress in Bavaria. In Prussia and other States of Germany the principle is now rigidly carried out. The people in Germany are gradually adopting the American popular idea that compulsory elementary education presupposes or necessitates gratuity.

During the year 1893–94 there were 3,211 cases of death among school children (in 1892–93, 2,923); 514, or 16 per cent, occurred in cities, and 2,699, or 84 per cent, in the country; 1,488, or 46.3 per cent, cases were boys, and 1,723, or 53.7 per cent, cases were girls. The percentage of cases of death was 0.4 per cent of the whole number of school children.

II.—SUNDAY SECULAR SCHOOLS.

The total number of pupils in Sunday secular schools (so-called supplementary or continuation schools) in 1893–94 amounted to 297,245. Of these, 35,980, or 12.1 per cent, were in cities; 261,265, or 87.9 per cent, were in rural districts; 131,434, or 44.2 per cent, were boys; 165,811, or 55.8 per cent, were girls; 216,670, or 72.89 per cent, were Catholics; 79,115, or 26.62 per cent, were Protestants; 1,287, or 0.43 per cent, were Hebrew; 173, or 0.06 per cent, were of other creeds.

During the preceding year the total number was 304,227, hence a decrease of 6,982 in one year which the official reports do not attempt to explain.

III.—DISMISSALS BEFORE COMPLETING THE COURSE.

On account of peculiar conditions provided for in the Bavarian law of compulsory elementary education, the following number were dismissed by way of dispensation before completing the course: 762, or 0.093 per cent, day-school pupils; 109, or 0.036 per cent, Sunday-school pupils; 48, or 0.006 per cent, day-school pupils in the cities; 714, or 0.087 per cent, day-school pupils in the country; 19, or 0.006 per cent, Sunday-school pupils in the cities; 90, or 0.030 per cent, Sunday-school pupils in the country.

IV.—EXPENDITURES FOR ELEMENTARY SCHOOLS.

The total amount of expenditures for elementary schools, both day and Sunday schools, in so far as they include appropriations on the part of communities and the State in 1893–94, was 18,070,708 marks,

or $4,300,828, to which should be added the tuition fees mentioned before, to wit, $384,469; grand total, $4,685,297. Taking both day and Sunday school pupils together (namely, 1,016,810), we find the expense per capita of the school population to be $4.60. If the Sunday-school pupils are excluded from this calculation, which may properly be done since they are taught by the teachers of the day schools, the per capita expense would be $5.95. The per capita expense of the population was a little less than $1.

The salaries claimed 56.9 per cent of the total expenditure, while new buildings, heating and lighting, and other repairs claimed 43.1 per cent. The expenditures other than for salaries are specified as follows: 44.2 per cent for new buildings, 13 per cent for repairs, 17.8 per cent for heating and lighting, 2.3 per cent for furniture, 3.9 per cent for apparatus and devices for teaching, 18.8 per cent for other school purposes.

V.—SALARIES OF TEACHERS IN ELEMENTARY SCHOOLS.

The total income of all elementary teachers in Bavaria in 1893–94 was 18,354,719 marks, or $436,842. This amount was distributed as follows: 97.5 per cent to the regular teachers, to wit, 85.2 per cent to class teachers, 8.7 per cent to principals, 6.1 per cent to assistants, 2.5 per cent to religious and special teachers, 2.5 per cent to inspectors.

The official report from which these data are taken states, also, the sources of the teachers' income, to wit, 54.1 per cent from municipal or district taxes and funds, 10.2 per cent from provincial funds, 25.1 per cent from State funds, 5.6 per cent from the church for services performed as organist and sexton, 5 per cent for services as secretary of the town council or other services.

The sources of income of religious teachers are: 95.7 per cent from municipal and district taxes, 4.3 per cent from provincial funds, while no State funds are used for this purpose.

B.—Continuation Schools.

In Germany the term "continuation schools" is used for day schools, evening, and Sunday schools in which children over 14 years are taught for the purpose of securing the results of elementary school work and to prepare boys somewhat for future occupations; hence they are variously called simple continuation schools, industrial continuation schools, and agricultural continuation schools. In some parts of the country the town authorities make attendance at such schools compulsory between the fourteenth and eighteenth year of life.

Bavaria had, during the year 1893–94, as many as 257 industrial continuation schools (in 1892–93, 253). Of these schools, 208 were independent and 49 were connected with high schools without Latin. In 169 schools of this kind the attendance was obligatory by municipal statute.

The number of pupils at industrial continuation schools amounted to 32,286 (in 1892–93, 31,321), of which 578, or 1.79 per cent, attend day courses, and 31,708, or 98.2 per cent, the night and Sunday courses. Of the pupils of the last-mentioned courses 23,597, or 68.26 per cent, are taught in the elementary division, and 10,971, or 31.74 per cent, in the industrial or special classes. It will be noticed that the two numbers added together are greater than the sum total of pupils. This is owing to the fact that many pupils are in both elementary and special classes.

The number of teachers in these industrial schools was 1,647 (in the previous year, 1,592); 64, or 3.89 per cent, of these were employed exclusively for elementary work. The total amount expended was 602,434 marks, or $137,379, of which sum 75.84 per cent was used to pay teachers' salaries.

The number of agricultural continuation schools was 447, among which were 12, or 2.68 per cent, kept open only in winter. The number of pupils in these schools was 8,280 (in 1892–93, 9,022). Of these, 536, or 6.47 per cent, attended the winter schools. Seven hundred teachers were employed in agricultural continuation schools, of whom only 6 were not also engaged in teaching elementary schools.

The total amount expended for agricultural continuation schools was 160,779 marks, or $38,265, of which sum 57 per cent was used to pay teachers' salaries.

There is still another kind of continuation schools in Bavaria, to wit, forestry schools. In 1893–94 Bavaria had 5 institutions of this kind, with 252 pupils and 24 teachers. Tuition and matriculation fees in these schools amounted to 5,119 marks, or $1,218, while the expenses were 32,198 marks, or $7,663. Ten of the teachers were expert foresters.

C.—Secondary Schools.

The following table gives the official data with reference to secondary education in Bavaria:

Kind of schools.	Total number of schools.	Private schools.	Teachers.	Pupils.	Extra attendants.
High schools with Latin and Greek	37	.....	999	16,358	.....
High schools with Latin only	49	8	481	3,368	.....
High schools of mixed character	4	.....	66	551	.....
High schools without classical languages	58	7	929	13,280	84
Industrial schools	3	.....	49	433	47
Schools for the building trades	5	.....	104	1,867	.....
Commercial schools	8	5	110	1,234	60
Schools of industrial art	2	.....	44	417	87
Preparatory schools	44	8	235	1,994	.....
Normal schools (male and female)	22	9	203	1,240	20
Music schools	13	6	67	1,341	557
High schools for girls	132	103	1,609	13,737	251
Schools of female industries	36	34	143	3,199	.....
Normal schools of female industries	6	5	29	73	30
Agricultural schools	6	.....	67	332	1
Normal school for gymnasts	1	.....	4	343	.....
Professional schools	45	15	113	2,682	18
Other private schools	3	3	20	133	.....

D.—Higher Education.

The number of students in all the institutions for higher education in Bavaria amounted to 9,158 during the winter semester of 1893–94. The following table gives the details:

Institutions.	Students in winter.	Students in summer.
University of Munich	3,464	3,798
University of Würzburg	1,352	1,300
University of Erlangen	1,105	1,164
Seven theological lyceums	770	739
Academy of Fine Arts	419	340
Polytechnicum of Munich	1,327	1,317
Forestry Academy	111	103
Veterinary Academy	194	169
Conservatory of Music	269	269

Degrees were conferred in the three universities as follows: 292 in winter, 295 in summer; 202 degrees were given to Bavarian students, 385 to students from other German States or to foreign students. The following table gives the results of the examinations for promotions, that is to say, of candidates for State offices:

	Candidates examined.	Candidates passed.	Per cent.
Three universities	1,131	831	73.5
Seven theological lyceums	174	174	100
Polytechnicum	269	222	82.5
Academy of Fine Arts (has no final examination)			
Forestry Academy	86	79	91.9
Veterinary Academy	31	21	67.7
Conservatory of Music	18	18	100

EXTRACTS FROM AN ESSAY ENTITLED "THE LATEST MOVEMENTS IN EDUCATION IN THE UNITED STATES."

In a discussion in the "Zeitschrift für ausländisches Unterrichtswesen" on this subject Dr. Schlee, who was a member of the famous December conference in Berlin, called by Emperor William for the purpose of simplifying the courses of study in secondary schools, and who visited the United States during the Columbian Exposition, makes some pointed remarks concerning the reports of the committee of ten and the committee of fifteen appointed by the National Education Association.

After a thorough review of the work of the committee of ten and its subcommittees, he closes with these words:

The fundamental points which the committee of ten recognizes as fixed are (1) that the number of lessons per week be not increased, (2) that the conditions of admission to college be not increased, and (3) that the principle of unity upon which the common school rests be not disturbed. This last-mentioned point meets all demands for a differentiation or bifurcation previous to the eighth year of the course. In other words, that the pupils intending to enter college and those

intending to devote themselves to business pursuits should have precisely the same elementary instruction. Yet the committee declares it impossible to prepare a suitable programme for the secondary school having a course of four years if it be built on the present course of the common school. Either instruction in foreign languages, mathematics, and natural sciences should begin in the elementary school or the secondary school should begin two years earlier, and leave only six years for the elementary school. It is claimed that elementary instruction, both with regard to matter and method, is continued too long. In all the sub or special committees the complaint was heard that the high school did not find sufficient preparatory knowledge in the pupils, and that it had to begin with all secondary branches at the same time.

Of all claims for an earlier beginning of secondary branches none was more emphatic than that for foreign languages. The valuation of modern foreign languages is naturally different in America from the European, for the American does not recognize the need of them as languages of communication. Still, knowledge of foreign languages is considered by him of great value for the training of the mind, especially for a more thorough comprehension of the mother tongue, although this is not attributed to the power of a special formative and logical training as it was formerly in relation to Latin grammar. On the other hand, the comprehension of the German language is acknowledged as a means to a recognition of German science. While the committee in its general discussion emphasized more the pedagogical gain arising from the study of foreign tongues, in the details of its plan of study it points to this more practical aim. The report does not arrive at a complete equalization of these different aims.

The committee goes farthest in its recommendations concerning modern languages, the chairman designating this as most novel and striking. They are, that German or French be introduced as a regular study in the fifth school year, tenth year of age. The report adds that Latin would offer the same advantages, but living languages seemed more suitable for grammar schools, as the upper grades of the common schools are called.

The subcommittee on Latin considers it desirable to increase the demands in that study and regrets the fact that the study of Latin is commenced at a much earlier date in England, France, and Germany as compared with America. Still the committee thinks it undesirable to make a radical change, and is satisfied with the suggestion of beginning Latin one year earlier, devoting to it five hours per week. The committee on mathematics likewise advocates earlier occupation with geometry, and so, too, the committee on natural sciences claims several years for instruction in simple natural phenomena, in botany, zoology; and again, the committee on history calls for two years of study in history, American and universal history.

The question arises whether all these proposals can be united within the limits of the common school system. Doubtless some changes might be introduced in the grammar school easily without doing violence to its character as a common school. For instance, concrete geometry may be added to mathematics; that is, the introduction to the study of geometry by means of the senses and with the aid of drawing, measuring, without formal proof. Instruction in natural sciences may also be limited to a discussion of important phenomena, animals, and plants. But the unity of the system becomes questionable when instruction in modern tongues as an optional branch is introduced; still more by the introduction of Latin, ancient history,

and algebra as optional branches. These subjects should become compulsory branches during the last year's course of the elementary school. It is true ancient history does not seem as necessary for the Americans as it is for the Germans, because they have no history of the Middle Ages of their own, although their language and literature have borrowed much more from antiquity than we have. Consider the many antique proper names in America, as for instance, Athens, Sparta, Ithaca, Cincinnati, Capitol, etc. A connected history of classic antiquity is not related to the general culture of the people, and receives its value only in connection with higher education. And yet there is a proposition to teach Latin one or possibly two years in the elementary school. The subcommittee for instruction in Latin and the entire committee of ten leave this point somewhat unexplained and merely propose an earlier beginning, while at the same time offering suggestions tending to make the former nonactive.

In contradistinction, the committee of fifteen takes up Latin, with five lessons per week during the last school year of the course of the elementary school, and at the same time definitely adheres to the principle that the instruction for boys and girls should be precisely the same to the fourteenth year of age. This committee expects much from these weak beginnings in Latin, which are not continued, as it also does of algebra. Quite contrary to the sometimes excessive demand, heard in Germany also, for a definite conclusion and finish of the elementary education, the committee is of the opinion that a brief instruction in secondary subjects, like Latin and algebra, has a higher value than any elementary branch that might be substituted for them. Especially a year's instruction in Latin would place a pupil far above those who only studied English grammar, without Latin, for the beginning of any branch (discipline) lays special weight upon its fundamental ideas. During the first week of Latin lessons, the pupil is made acquainted with the remarkable phenomenon that a language can express by declensions and conjugations what his mother tongue does by means of prepositions and auxiliaries (English: to him, Latin: ei). He learns with astonishment that quite a different order of the words in syntax is to be followed, and that root words have still a concrete meaning, while the same words or their derivations in the mother tongue are abstract. These observations are mental germs, which grow and result in a better mastering of the mother tongue. Similarly the result of studying the elements of algebra are judged. For a young philosopher this might be found true, but for the majority of elementary pupils they are imaginings devoid of substance.

In this question we may see the pivotal point of the whole present educational movement in America. The weakness of secondary education is correctly recognized. The attempt ought to be made to begin earlier with foreign languages and mathematics, but any attempt to fit this plan for the entire common school, which naturally finds much opposition in America, must miscarry. Moreover, since the grammar school in the South and everywhere in rural districts closes with the sixth school year, America will have to follow the example of all other civilized countries and allow the high school and the elementary school to go side by side for a number of years. The propositions of the committee of fifteen, compared with those of the committee of ten, appear to us as a step backward.

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With reference to the organic connection between the high school,

college, and university, the committee of ten entertains the opinion, based upon actual conditions, that the course of study should be arranged essentially for those boys and girls who do not intend to continue their studies in a higher seat of learning; that is to say, those who do not intend to enter the college, and that a preparation for higher education could only be a secondary object of the high school. But starting from the theoretic presupposition that the chief branches, if treated thoroughly, are, as regards their formative power, of equal value for admission to college, the committee considers it right that the colleges make special conditions regarding the extent and duration of school studies and require proofs as the committee on English, for instance, does by demanding that no pupil be admitted to college who can not write good English. But on the whole the committee seems to favor the suggestion that a satisfactory graduation from a four years' course be considered a suitable preparation for college or any other scientific institution. In other words, that the examination for graduation in the high school do away with an examination for admission to college; and the committee considers this profitable for the schools, colleges, and the entire country.

The subcommittees of the committee of ten express themselves in detail concerning the method of instruction. Their reports show that pedagogical theory in the United States is everywhere abreast with the present status of science, and that it is very familiar with German pedagogy and psychology from Pestalozzi to Wundt. Although the statements do not bear the character of borrowed thought, but appear to have been thought out independently, still special portions bear a very familiar face; thus, for instance, when the committee on history speaks of political economy (Volkswirtschaftslehre). There is not another question in which the persons consulted show a greater variety of opinion. Some distinguished superintendents and principals wish to have this branch taught during the last year of the high school course; some even demand daily instruction for twelve weeks; other teachers declare that there is no place for that branch in the secondary school. Under the circumstances the committee thought it wise not to recommend formal instruction in political economy, but that the most important principles be presented in connection with the history of the United States and commercial geography. The subject would therefore appear first in its most elementary features during the third year of the grammar school, and then again during the last two years of the high school. It would appear not as a special science, but as an explanation of conditions of the commonwealth and of political questions.

Observe this passage concerning the mother tongue: "Both with reference to the high school and the lower schools, the committees declare that every teacher, in whatever branch he may instruct, must consider himself responsible for the use of good English on the part of his pupils." Similar to the committee on natural science, the committee on history emphasizes the necessity of written accounts, narrations, and other compositions; and if the propositions of the nine committees become realities there would be at least one written composition daily for every pupil, which, in the interest of good English, is important.

In the face of the method of instruction in vogue in America it is particularly remarkable that all these committees consider the acquisition of mere knowledge not the aim of education, but the development of the mental powers and comprehension, exercises in observing,

developing thought and expression. For this reason the various committees intend to limit the use of the text-book method and recommend its exclusion from grammar schools in studies like grammar, mathematics, and natural sciences. This method may be explained as follows: The text-book or guide is first studied, i. e., memorized by the pupil, mostly in school in so-called study lessons, and then the teacher asks for the contents of the lesson during recitations. While this reciting is going on he explains, corrects, and enlarges the matter as occasion demands. The committee of fifteen (whose report on method of instruction, written by Dr. Harris, takes its stand more on the solid ground of existing circumstances, not merely from necessity, but also from appreciation of these circumstances) gives special instruction for the treatment of this method, and recommends, for instance, the dividing each class into two divisions, so that the one study (memorize) while the other recite. The committee of ten, however, and especially its subcommittees, make oral lessons—that is, free instruction by the teacher—everywhere the principal thing. They wish that the teacher lead the child to observe and to start from observation and experience. In the interest of geography and natural sciences they recommend that one afternoon per week be utilized for excursions into the open air, and they suggest the utilization of the free Saturdays for exercise in natural-science laboratories. They further recommend more extensive equipment of the schools with means of instruction, more drawing wherever possible, and not merely means of demonstration for the teacher, but also means for the exercise of the pupils. Special subcommittees present a methodical order of experiments, 57 for the instruction in physics and 100 for chemistry.

However, for all this teachers are necessary, and these are found in few schools. The committee of ten, and almost all its subcommittees, point to this great want and make recommendations for the preparation of suitable teachers. The committee on geography, which furnished the most extensive report, recommends a course very much in harmony with the new Herbartians (for instance, Frick), namely, to make geography a central branch and not to restrict it to a mere description of the surface of the earth, but include in it the elements of botany, zoology, astronomy, and meteorology, with all sorts of discussions concerning commerce, politics, ethnology, etc., and this commission submits a course like the one treated with us only in its first beginnings (compare W. Zopf, "The sum total of instruction in natural sciences for Prussian secondary schools of both kinds, Breslau, 1887"). The committee of ten designates these propositions as revolutionary, although as an ideal course which it is impossible to carry out everywhere and immediately.

We give about the same criticism to the reports concerning instruction in the sciences, including history. Some of the propositions betray that they are put forward by academic professors whose judgment is not guided by pedagogical experience; for instance, when we see that for botanical instruction in the elementary school it is proposed to furnish every pupil with at least a microscope, alcohol, glycerin, and iodine to aid his investigations of plants; or when we see the pupils of the senior high school class instructed to judge the authority of sources, especially the difference between real sources and representations at second hand; or when it is seriously recommended to allow the pupils of the same class in history to use two, three, or four parallel text-books for the purpose of accustoming them to comparison and criticism.

However, these little things do not detract from the value of the whole. The report of the committee of ten has for America the importance of an official pedagogy, scientifically progressive and professional, which will exercise an important influence upon the American school for a number of years.

And now to the committee of fifteen. For the purpose of continuing its reform propositions, the National Education Association in 1894 appointed another commission, this time of fifteen men, who should solve the same problem for the elementary school, and sketch the principles of municipal school management, and make suggestions for professional preparation of teachers. To facilitate the work, this commission was divided into three sections, each of five members. Following the example of the committee of ten, they put themselves in communication with all parts of the country by submitting a number of questions to many learned men and educators, and calling for expressions of opinion.

It is not necessary to enter into the reports on the two subjects mentioned last, however important they may be for America, since they are closely connected with public institutions differing from ours. It may be remarked though that the proposals for school management intend to serve reform by making the municipal school commissions independent of political influence by means of appointment instead of election. This will increase the independence and responsibility of the school superintendent. The last question, the one concerning preparation of teachers, is perhaps the most urgent one in the United States, but its solution finds the greatest difficulties in the prevailing social conditions, which will wreck the suggestions, however logical they may be. They are, that the general education of teachers, male and female, should be four years in advance of the course of the school in which they instruct; hence that elementary teachers should have graduated from the high school, and teachers of secondary schools have passed through college; besides, that both should have pursued a partly theoretical and partly practical course of pedagogy in a normal school.

More important by far is the first of the three problems, and the report concerning it has all the more interest to us, inasmuch as it is composed by Dr. Harris, the present Commissioner of Education. We have touched upon the report in previous pages.

Its peculiar importance may be found in the fact that it has caused a commotion in the educational world of America such as has never been witnessed before. The department of school superintendence had proposed the subject, "Correlation of studies in elementary schools." This term is of doubtful meaning—at any rate, its meaning is disputed in America—more so than with us the term "concentration in instruction," a term that is used with more different interpretations by our new Herbartians (Ziller, Stoy, Kern, Dillmann, Frick) than by Herbart himself, who meant it to be a connection of the entire instruction for systematic training of the soul of the pupil. In the department of superintendence, however (as is seen from the meeting of the department at Cleveland, February 19 to 21, 1895), it seemed to have been the intention to call for a report upon the different kinds of concentration and a general application of Herbartian principles to courses of study and methods of instruction. One is all the more induced to think so since not only the committee of ten, but also the subcommittees on history, geography, and natural sciences had expressed themselves quite in the sense of the new Herbartian school,

and had especially suggested a combination of related branches in instruction. They had not only used the expression "association," which was plain enough, but had also used the word "correlation." We quote from page 16: "While these nine conferences desire each their own subject to be brought into the course of elementary schools, they all agree that these different subjects should be correlated and associated one with another by the programme and by actual teaching; that every subject recommended for introduction into elementary and secondary schools should help every other, and that the teacher of each single subject should feel responsible for the advancement of the pupils in all subjects, and should distinctly contribute to this advancement." The report was expected to solve the same problem which Frick had attempted to solve in the meeting of principals of the Province of Saxony in the year 1883.

But Dr. Harris, on the whole, belongs to a conservative class of men. His scientific leaning is not so much toward the natural-scientific as it is toward the historic-philologic direction. The analysis of definitions forms with him the starting point of investigation, and in the development of his course for the elementary school he does not hesitate to go back to Charlemagne's trivium and quadrivium. He can not be counted among the representatives of the grammatical specialists, since he knows how to value a correct realistic instruction and does not try to make grammar a favorite factor in the so-called formal training. Yet he stands on the philologic side of the question, and regards language as the center of instruction in elementary schools. He may have been induced to emphasize this more particularly, since in public education in America the interest in natural sciences predominates, which may be seen from the fact that the pedagogical influence of Preyer finds much applause. We may also add that Dr. Harris is a Hegelian and, particularly in psychology, an opponent of Herbart. Finally, a misunderstanding added to the agitation, for he did not use the term "correlation of studies" in the sense in which it was used in the questions submitted. In short, he did not, as was expected by a number of educators, furnish an essay concerning the proper relation of branches in the course of study. In his fine and well-weighed manner he enters upon the order in which the branches should enter the course in harmony with the development of the pupil. He then explains more particularly what Stoy designates as "statics of instruction;" that is to say, the selection and amount which would promote an all-sided harmonious development of the mental powers and interests, and how a course of study should be framed to introduce the pupil into the totality of human knowledge of the present day, and prepare him for the practical demands of the world in which he is to live.

However well this may have been thought out, there is much abstract deduction without actuality in it. The kind of correlation of studies which many had thought of he merely touches by characterizing and rejecting the artificial combination of instruction in "Gesinnungs- und Kulturstufenstoff," rejected by the American Herbartians, as is done by our modern Herbartians in Germany, and he did it in referring to Ziller's example of Robinson Crusoe. To combat the perversity of artificial concentration was wise and proper, especially the mixing up of the branches of study, which is found in Germany here and there trumped up in model lessons in which essentials are torn apart and thrown aside in order to make excursions into other fields. But Dr. Harris not only neglected to point out the correct method of associa-

tion and concentration, but also failed to show the establishment of centers and unities within each branch of study by means of selection and grouping; nor did he touch upon the assistance of the various branches to one another by means of suitable reading matter and drawing; nor did he suggest a method of comprehensive relation of knowledge, but he provoked his opponents by placing his views, which are correct enough, to be sure, in direct contradistinction to the endeavors of the Herbartians. In place of concentration he advocated, especially for the beginning of instruction, the principle of analysis and isolation, so that everything individual and characteristic found in any branch of study should be clearly comprehended and become effective. While on the other side, in exaggeration of a correct idea, the study of the child's soul is made the basis of the whole science of pedagogy, Harris emphasizes sharply that it is not the psychology and the physiology of brain cells which determine the kind and extent of the branches taught, but the demands of the civilization in which the child is born, so that it be enabled to perform its duties in the family, in civil society, in state, and church. The method of instruction is to him a secondary consideration, and for external matters each science will suggest its own directions.

The consequence was that after the report was read in Cleveland February 19 to 21, 1895, the debate disclosed an almost universal and violent opposition. However, the study of educational questions, especially the Herbartian pedagogy in America, has received a stronger impetus than it would have received if the report had represented Herbart's views. According to information received from an American educator, there have never been such animated discussions in the educational world in America as at present. The United States, it is said, resembles a hotbed of pedagogical discussion, over which the gods must rejoice.

A GERMAN VIEW OF THE REPORT OF THE ENGLISH ROYAL COMMISSION ON SECONDARY EDUCATION.

The Annual Reports of the Commissioner of Education of 1894–95 and 1895–96 contained full accounts of the report of the English Royal Commission on secondary education, and quoted numerous noted English writers in reference to its origin and effect. The document proved of sufficient importance to arouse the attention of educators in both hemispheres, and it is instructive to see how this result of a thorough investigation, both in England and its colonies, and on the European continent, as well as in the United States, is reflected in the minds of German educators. The "Deutsche Zeitschrift für Ausländisches Unterrichtswesen" (a quarterly published in Leipzig and edited by Dr. J. Wychgram) contained in the second number of 1897 an authoritative German expression of opinion, which evidently views the English effort at reforming secondary education very impartially, yet critically. An English version of this article is offered here, with the hope that it may contribute to the comprehension of the report of the Royal Commission, and to gain an insight into the principles underlying governmental action in behalf of secondary schools in the

two countries, Germany and England. In some parts of this article it may be useful to refer to previous publications in the Annual Reports of the Commissioner of Education. (See pp. 583 to 713 of vol. 1, 1894–95.)

Dr. Otto W. Beyer, in the article mentioned, treats the famous document of nine volumes as a whole, and dwells preferably upon the underlying principles. He writes as follows:

The report of the commission on secondary education in England is undoubtedly one of the most, if not the most, important documents relative to school questions that have been published within the last decade of the development of secondary education in England. In cases of important issues it is a favorite mode of procedure of the English nation to appoint Parliamentary commissions for the investigation of far-reaching and particularly difficult subjects, and to endow them with unlimited power of requisition, so that the bare fact of presenting to the public a detailed report in nine volumes on secondary education in England is significant of English conditions.

Germany has nothing to offer in comparison. Without reflection, the report on the conference convoked by the Emperor in Berlin, December, 1890, might be suggested, but this publication can be only distantly compared to the English. From the outset the purpose defined was more limited and much less uninfluenced than that of the royal commission of England. The method of procedure and the membership were also entirely different; and in reality the German report lacks just those supplements which make the English report so valuable, to wit, the views in form of written opinions, and the stenographic accounts of testimony of every class of the public conversant with the subject, and the critical judgment passed on these opinions by the commission.

It is not our intention to offer a criticism on the value of the German report; we wish merely to state the fact that in Germany there exists no similar educational document. It is evident that Germans do not lay the same stress as the English do on public opinion, at least in matters pertaining to the learned professions. Whoever followed the important newspapers of England from the fall of 1895 till late in the following spring, during which time the battle of voluntary and board schools raged, will remember how contributions on this question poured in thick and fast, day by day, and will understand how the English Government would have ignored popular opinion had it overlooked the movements of public interest. In the discussion on the conditions of secondary education the Government may have felt the necessity of extra circumspection because of the important questions of material welfare at stake, and at the same time because of the close connection of these questions with the sympathies and antipathies of great and influential classes and with the weal or woe of numerous honorable institutions. In the present case the opinion of all parties concerned was greatly to be desired.

These facts were kept in view in forming the commission and when investing it with powers. The commission consisted of 17 members—learned professors, high ecclesiastics, Government officials, members of Parliament, representatives of university extension, and others, including three women, of whom two had received a doctor's degree at English universities. Consequently, the best educated and thoroughly impartial laity were commissioned with the investigation. The powers

granted by the Queen were unlimited. The commission was empowered to interview experts, examine books, documents, registers, reports, etc., and to adopt any other lawful means which it might deem serviceable to obtain a view of the state of affairs. Its field of investigation was secondary education in the broadest sense of the term—all authorities, central as well as local, occupied with education; all kinds of high schools, among them many on the border line between elementary and secondary schools; all kinds of teachers of high schools and their conditions; all kinds of school buildings, and, finally, all kinds of resources and their application. The report was laid before Parliament, which gave it the greatest possible publicity. The commission accomplished its work in 17 months, or 105 sessions. Many specialists were consulted, and when necessary auxiliary commissions, or subcommittees, were formed, consisting of both men and women.

The first of the nine volumes gives an account of the issues; it formed the basis for the statement of contents of the whole work. The second, third, and fourth volumes contain a verbatim report of the many opinions expressed on the different questions; the fifth volume contains notes of different specialists, as well as written answers to questions directed to individuals or corporations. Information is also given on secondary education abroad, as in the English colonies of Canada, Australia, New Zealand, and Tasmania, in the United States of America, in Austria-Hungary, Belgium, France, Bavaria, Hessia, Prussia, Saxony, Saxe-Weimar, Würtemberg, Holland, Spain, Sweden, Norway, and Switzerland. The sixth and seventh volumes contain the reports of the auxiliary commissions on the systems of secondary education in America and on conditions in countries which were regarded by the commission as typical of the development of secondary education in England. The eighth volume contains the summary and index of all the opinions of specialists, while the ninth volume closes the work with a large number of statistical tables.

Considering the report as a whole, we are at once confronted by the pleasing fact of the fund of common sense at the bottom. It is manifestly a very carefully prepared extract from all experiences and desires accumulated during the course of generations in widely different places under the most diversified conditions and under the greatest variety of influences. Its reflections are founded upon a manifold reality showing much individual life attended with great irregularity. On this broad foundation it certainly attempts—probably with too great care—to deduct generalities by a purely inductive method. Thus the report is also remarkable as being a typical evidence of the purely inductive English, we might say Baconian, mind resting firmly on a basis of a modest realism.

The Germans incline more to being deductive; but though it is our original title to fame and our strength and our pride in science, it may be questioned whether this marked tendency toward deductive reasoning may not have had too strong a theoretic influence on our school systems. The feeling that such is the case is widely spread in Germany, and was experienced by the Emperor when he convoked the conference in Berlin, December, 1890. As Brandi has rightly said in the Prussian Yearbooks (vol. 84, No. 2, p. 270), the first question with Germans is, "What do we want?" With the Englishmen it is, "What can we do?" We define our aim by what seems best; the English define theirs by what is attainable. The question is whether we, in determining what "seems" best, sufficiently consider the manifold and various conditions of practical life and their influence on school

education. The reserve of the English report gives us food for thought in this direction; the fact is repeatedly emphasized that few general rules should be laid down, as there is constant danger of treating too theoretically different necessities and entirely different degrees of capacity. "Uniformity" and "systems" of education the commission would abandon, displacing them under all circumstances by freedom, diversity, and expansiveness, advantages which have so often counterbalanced its deficiencies. For this reason the English are so patient with the multitudinous distinct forms of their educational system which are at times so difficult for us to understand. Up to a certain point it is believed that whatever exists is justified.

But the commission is not blind to the deficiencies of the English system of education. The chief evil of a lack of "coherence" and "correlation" in administration is properly appreciated; it could hardly fail to exist among four central authorities. The report mentions as a probable case that large sums of money may have been expended on buildings or other appurtenances which, if not altogether superfluous, have nevertheless not been sufficiently considered, or have been planned with respect to certain districts only, or to special purposes, whereas others should have received similar consideration. Besides, many plans generally conceded to be excellent could not be carried out, because of the uncertainty of receiving the money appropriated for the purpose by the law of 1890. The report emphasizes the immediate necessity of bringing about a change by means of legislation and the privy council. A special form of deficiency is the so-called overlapping of school districts, boundaries, and authorities.

Further fault is found in the misappropriation of endowments. It is to be distinctly understood that the newly to be appointed local school authorities are to be empowered with the regulation of spending endowment funds, and that their action is to be supported by the Government, even if old endowment statutes are violated in the interest of schools. As to what concerns the internal conditions of schools, it was found that pupils are kept in a state of dullness and indolence; the consequence is that as adults they do not seek to satisfy their desire for pleasure in the noblest way. The senseless so-called cramming for examinations is also deplored, as well the frequency of examinations, and the evil that hitherto one examining board seldom acknowledged the merits of the work of another. The commission maintains that there should be uniform examinations for the whole country. It has been found to be only too true that many schools do not accomplish proper results, and that many teachers are poor educators. The proposed means of reformation will be given later on.

On the other hand the merits of the English educational system receive due recognition. First among these are the wealth and multiplicity of individual forms of schools and the voluntary powers zealously devoted to secondary education. To avoid future interference with the multiplicity of distinct forms the commission does not favor laying down general rules for the establishment of secondary schools. It thinks that it should remain or become the duty of local school authorities to provide such schools in every district, as in conformity with public opinion, best meet local needs. For the same reason there should be no specified curriculum of study for the different types of schools.

The evidences of action among voluntary powers in behalf of secondary education are found in the existence of a large number of societies, independent of the State, which make a point of founding

and supporting schools. It is a great act of self-reliance to exert personal effort where there are no endowed schools. Some of these societies are stock companies, institutions for educational purposes little known in Germany. The large, even imposing, endowment funds, so frequent in England, are signs of the great interest manifested in the education of youth beyond the elementary stage. Such endowments for educational purposes are much more numerous in England than in Germany, but we must not forget that we, suffering from the effects of the thirty years' war, are not so rich a nation as the English, which was drawing in wealth from its colonies while our country was rent with the bloodiest and most disastrous war in the annals of history. The industrial development of England, moreover, began several generations earlier than ours, and private assistance had more occasion to extend a helping hand, as the State did nothing for education. The social evils of large cities also attained a higher degree of threatening danger much sooner than with us, and better education was regarded as a reformatory means. Many facts go to prove that in England the spirit of self-reliance is much older than with us—a consequence of the extended local self-government which England has enjoyed for many centuries. England is preeminently the country of social customs.

Further evidences of voluntary action are seen in university extension which, supported by the influence of the two ancient and rich universities of Cambridge and Oxford, for a long time developed without any State assistance. Very recently the Government has allowed appropriations for this enterprise. The whole movement plays an important part in England. The memoranda of the commission contains various entries respecting it. Even the two[1] independent institutes which the movement called to life, i. e., the university-extension colleges at Reading and Exeter, were called upon by the commission to furnish their data.

Another result of independent action is the establishment of a system of examinations for secondary schools without intervention from the State. Universities arranged examinations for preparatory and other secondary schools, originally out of necessity, because they had suffered the unpleasant experience of a constantly deteriorating preparatory education. The result of these private efforts has been that advanced education is controlled by the universities, a condition generally appreciated.

Compulsory attendance is not an immediate effect of State influence. School boards received permission from the Government to require compulsory attendance in their districts as they saw fit. Neither is school inspection founded upon State laws; it was introduced solely by ordinance.

As in weighing the merits and faults the commission showed a remarkable absence of prejudice, so a wise diplomacy is manifested in the measures they propose. Its uniform good will toward all secondary education is a mark of wise policy. Its earnest aspiration is to liberate the latent intellectual powers of youth, and to remove as many as possible of the obstacles in the way of their development. Necessarily the notable fact must have had influence that the universal competition threatening England in the field of industry, in which until recently it was the leader, makes a better appreciation of these powers a stern duty.

[1] More recently a third has been established.

Extraordinary caution is displayed in all proposed reforms, and great care is taken not to infringe upon time-honored principles of local self-government. The State is advised not to interfere when State interference is not positively necessary. The opinion held by the commission is that this principle has made the English great as a nation, and should be preserved. At the same time it is justified in apprehending that a contrary attitude of the Government would excite the people to too great an extent. In point of fact, nowhere outside of England has the controversy over the claims of State opinion against the rights of the individual (in itself the problem of all political development) been carried on with such tenacity of purpose and such whole-souled participation on the part of the individual. For this reason the commission considers it of paramount importance to combine the greatest simplicity with the least possible disturbance of exciting conditions. Therefore, it maintains that interference of authorities in general is permissible only to preserve present privileges and in cases of appropriations of public money, and possibly, also, inspection of sanitary conditions.

In pursuance of these opinions there is a given instance that where it is so desired private schools may refuse to submit to any State inspection except that of sanitary conditions. Even though the power of the State be unquestioned, a misuse of that power should be cautiously prevented. A highly estimable sense of justice is manifested in the report in the measures suggested against force employed to coerce minorities or individuals. The forbearance which the document recommends with inefficient private schools and poor teachers can be understood to proceed from a similar feeling. As a father does not willingly disown a wayward child, so the State should not relinquish the hope that inferior schools and incompetent teachers may improve by the example of their betters. Again, the commission shrinks from an attack on personal liberty. The creation of a monopoly for public schools by suppressing private schools is considered a step that might retard the progress of education. The duty of the law to educate the people is considered of higher importance than the immediate lessening of existing evils which, beyond a doubt, would vanish under stricter regulations against inefficient schools.

The commission seems to have forgotten that the children suffer when the State countenances poor schools and inefficient teachers. A seeming good will toward adults thereby leads to an indisputable injustice to minors. But if wrong in that case, the commission is decidedly right in placing a high estimate on the duty of the Government to educate the people. This alone explains its desire to invest with great power the local authorities newly to be appointed. A similar experiment has already been tried in the educational system of England; the Government at least sanctioned the policy of investing great power in local authorities. The county councils established in 1878, self-governing bodies originally vested with important judiciary power, but in nowise with special rights of school inspection, were allowed an annual appropriation of about $2,750,000 to be expended for the cause of technical education. The wide interpretation given by the law to the very term technical education enabled the councils to support not only technical education but a great part of secondary education in general.

It is no wonder that a body whose members have been elected for entirely different purposes from the development of secondary education should, in the beginning, misspend money. In the end, the

experiment was rather a costly one; but so rich a country as England holds its own even under dearly bought experiences that always have something of an educational character. It is not unlikely that the increasing experience of the councils in matters of secondary education in the meantime made the investment pay. At least there prevails a constantly growing belief that county councils have rendered useful service in developing secondary education, and the measure proposed by the royal commission of allowing them to elect the new local boards substantiates this. Continuity of development, which this measure protects in a field that can least bear violent agitation, must be provided for by a wise and precautionary government. It is not at all impossible that these local boards which can look back upon experience gained under adverse conditions will one day be the pride of the English educational system. The commission has especially prepared their berth with a tender love of preference.

It is furthermore significant that local school boards have very extensive powers of supervision, but only mild means of compulsion. An educational aim is thereby kept in view; the judgment of a citizen is spurred on to a voluntary acceptance of such sacrifices as the law can exact. To excite a lively local interest local school boards are permitted to superintend all affairs relative to secondary education—teachers, pupils, resources, and conditions of the schools. Within the limits of the law they shall have sovereign control in their sphere of action; they shall found and organize schools, maintain and supervise them; however, they must not directly oppose those to whom they owe their existence. They must act equally in contact with the central power and the people without any other intermediary whatever. The royal commission has intentionally left out of its recommendations the creation of an isolated provincial authority. Its opinion is that its functions should be divided between the central power and local authorities, and that a provincial authority would only occasion friction.

This is a strictly decentralizing measure; in fact, the commission has made every effort possible toward decentralization, as it is of the opinion that the intervention of the state in secondary education should be very limited, much more so than with us in Germany. It is disinclined to place secondary education entirely under public control, and considers the examinations and revisions prescribed for elementary education detrimental to secondary education. The commission is very skeptical respecting fixed courses of study; it looks for a remedy rather in the improvement of methods and a better preparation of teachers. In the present condition of normal schools, and with present methods of instruction in England, this is most apt to be the correct view.

We have already seen with how much caution the commission proposes innovations. In all cases it endeavors to make the best use of existing conditions with the least possible disturbance, and retains whatever of present usage is to any degree justifiable. With a strong partiality for conservative methods, it recommends that no new taxes be imposed, but that present incomes be distributed in conformity with the English principle to make the best of a thing. It agrees with Matthew Arnold, that the resources of secondary schools in England are immense if judiciously divided and properly applied. Therefore it insists upon a revision of regulations for endowments; therefore it maintains that the statute governing any endowment fund should not become in force until forty years after its establish-

ment; therefore it proposes that statutes referring to the expenditures of endowments, the interest of which exceeds $500, should be submitted to Parliament for approval; therefore it favors appropriate regulations for endowments in general. One of the main issues is that when any school has more income than it needs the tuition fee should not therefore be reduced for those students whose parents can easily pay, but that the general plane of instruction be elevated by means of this surplus; the latter should be expended for appurtenances, the usefulness of which is commonly acceded but for which parents are unwilling to pay extra charges.

Our consideration of the political aspects of the report would be incomplete were we to omit, in conclusion, its efforts toward equalization of the various institutions and its recommendation of the weaker schools to the economic protection of the State. It maintains that endowment funds should go toward the support of poor but talented students, recommends the employment of women in the field of secondary education as teachers, inspectresses, or members of local school boards, and upholds the rights of assistant teachers, especially by making an effort toward ameliorating their pecuniary position, which offers too great a contrast to that of the well-paid head teachers. A similar plan of action is adopted in its support of evening high schools. These should be supported wherever local needs demand it, and the tuition fee should be as low as possible. The commission is manifestly animated by the thought that any one who seeks evening instruction after a day's labor should in every way be encouraged, the more so as one in such a position requires further education for his own professional success. Mention must be here made of the commission's earnest, thoughtful care for rural districts. For a long time life in the agricultural districts of England has not been easy, and the commission justly remarks that, in the present deplorable condition of the oldest and greatest English industry, husbandry, every means should be devised to elevate the rural population. Every measure appropriate to leveling social distinctions and interesting the separate classes of teachers in one another for their common benefit and progress is considered beneficial to the profession and indirectly so to the State of which it forms a part.

The same remarks apply to Germany, where the different classes of teachers are kept apart by almost insurmountable barriers. In England affairs are not quite so bad. Each teacher there may rise to the highest professional dignity. From being the assistant to a village teacher, the lowest grade of the profession, an ambitious teacher may become a university student, and all schools are open to graduates in universities. Similar conditions prevail in Saxony, and perhaps in some other of the German States. Prussia is still averse to allowing teachers the possibility of unrestricted promotion. In England, however, not only teachers of elementary and secondary schools are in close contact, but the boundary lines between the schools themselves are not sharply drawn. It is a very characteristic fact that the commission does not advocate classifying of schools according to the kind of instruction or the amount of tuition fee charged. The view of the commission is that the true value of instruction, its vivifying influence on the pupil's mind, depends less upon the particular subjects taught than upon the inspiriting methods by which the mind is aroused.

Reviewing these reflections, we may, in conclusion, deduce the following results: The whole investigation of the condition of secondary education in England, which forms the subject of the report of the royal

commission, is distinguished by a careful consideration of public opinion manifested by the constitution of the commission, the selection of the persons interviewed, the critical review of their expressed opinions by the commission, and the unreserved authenticated publication of the results of the investigation. The report is a conspicuous testimony of English common sense. It is impartial in uncovering the faults and bringing out the advantages of secondary education as at present conducted in England, and shows wise diplomacy in its attitude toward the great object which it represents. It manifests a uniform good will toward all efforts for the improvement of secondary education, sanctions and even encourages local self-government on this subject, attaches great importance to making use of what is established as well as of transitionary movements, places a high estimate on the educational character of the law, enters even into the details of expenditures for the benefit of youth, favors the protection of the poorer classes, and advocates an equalization of social distinctions in reference to students as well as the teachers.

The lawgivers to whom this report is submitted are to be congratulated, and we may express the hope that, even after a first unfortunate attempt, a law for secondary education in England may in future be framed which will embody the spirit of the report of the royal commission.

MANUAL TRAINING IN GERMANY.

In no case has manual training been adopted by the authorities of any system of schools in Germany. Neither city nor provincial nor State authorities have recognized in manual training a study which deserves general introduction to the schools, except female handiwork, which is found everywhere as an integral part of the course of study for girls in elementary schools and in secondary schools for girls. Hence, wherever manual training is found in any school in Germany it is the result of private initiative. Private persons and societies, such as "societies for the promotion of practical education and handicraft," have established independent schools for that purpose or prevailed upon the municipal or State authorities to make a manual training department an annex to some elementary or secondary school of good repute. But while the officers of the regular school systems—elementary, secondary, and higher—refuse to introduce manual training, all the German educational authorities are engaged in promoting industrial, trade, and technical schools, both elementary and secondary. In the second part of last year's report a statement of the industrial schools in Germany is given which shows that the number of such schools is comparatively large.

The statistics here given are compiled from a recent German report.[1] In the absence of later statements, the general results shown must suffice. The total number of schools for manual training of boys in

[1] "The present condition of manual training in Germany, statistically represented by order of the German union for handicraft of boys," by Alban Förster, editorial secretary of the Royal Statistical Bureau of Saxony, Dresden, 1893.

1892 was 328, of which 126 were independent schools, while the others, 202, were connected with a variety of institutions, such as classical and modern high schools, normal schools, private elementary schools, orphan asylums, schools for the feeble-minded, deaf and dumb, and blind.

The agencies that maintain manual training are (*a*) special societies (50 schoools and 72 annexes), (*b*) municipal authorities (70 schools), (*c*) State authorities (66 annexes). Expressed in percentages: Societies maintain 38 per cent of these schools, municipal authorities 24 per cent, States 21 per cent, while private persons maintain 10 per cent, church congregations 2 per cent, others 5 per cent.

It is not practicable to give the date of establishment for every school enumerated, but the following statement may aid in gauging the progress of the movement:

Date of establishment of German manual-training schools.

Established.	Independent schools.	Annexes to other schools.	Established.	Independent schools.	Annexes to other schools.
1878 *a*	----	26	1886	1	9
1878	1	----	1887	8	11
1879	3	----	1888	13	11
1880	4	4	1889	19	23
1881	9	6	1890	21	30
1882	4	3	1891	27	36
1883	2	6	1892	9	16
1884	3	10			
1885	2	11	Total	126	202

a Before.

The following table shows the number of teachers and pupils in the German manual-training schools:

Instructors and pupils in German manual-training schools.

State or province.	Instructors.						Pupils.		
	Independent schools.		Annexes.		Total.		Independent schools	Annexes.	Total.
	Teachers.	Artisans.	Teachers.	Artisans.	Teachers.	Artisans.			
Prussia	149	19	114	50	280	78	4,305	3,597	7,992
East Prussia	12	------	1	------	13	------	304	20	324
West Prussia	5	------	2	------	7	------	273	55	328
City of Berlin	29	------	12	------	41	------	500	200	700
Brandenburg	5	------	3	19	8	19	205	549	754
Pomerania	2	------	2	3	4	3	60	101	161
Posen	8	------	2	------	10	------	211	90	301
Silesia	31	11	5	9	36	20	844	418	1,262
Saxony	7	------	18	5	25	5	361	569	930
Schleswig-Holstein	5	------	3	4	8	4	179	120	299
Hanover	7	7	16	4	23	11	751	464	1,215
Westphalia	3	------	5	3	8	3	99	112	211
Hesse-Nassau	7	------	13	4	20	4	123	307	429
Rhineland	25	1	32	8	57	9	426	592	1,018
Hohenzollern	------	------	------	------	------	------	------	------	------
Bavaria	2	------	13	9	15	9	32	404	436
Saxony	61	11	63	33	124	44	1,600	1,396	2,962
Würtemberg	3	3	7	------	9	3	130	78	208
Baden	7	1	3	------	10	1	211	172	383
Hesse	------	------	2	1	2	1	------	15	15
Mecklenburg-Schwerin	------	------	------	------	------	------	------	------	------
Mecklenburg-Strelitz	------	------	------	------	------	------	------	------	------
Saxe-Weimar	4	------	6	4	10	4	114	98	212
Oldenburg	------	------	------	------	------	------	------	------	------
Brunswick	------	------	2	------	2	------	------	75	75

Instructors and pupils in German manual-training schools—Continued.

State or province.	Instructors.						Pupils.		
	Independent schools.		Annexes.		Total.		Independent schools	Annexes.	Total.
	Teachers.	Artisans.	Teachers.	Artisans.	Teachers.	Artisans.			
Saxe-Meiningen			2	1	2	1		94	94
Saxe-Altenburg									
Saxe-Coburg-Gotha	2		4		6		93	139	232
Anhalt			1		1			12	12
Schwarzburg-Sondershausen	1				1		12		12
Schwarzburg-Rudolstadt	1	2			1	2	60		50
Waldeck									
Reuss, senior line									
Reuss, junior line			7		7			68	68
Schaumburg-Lippe									
Lippe	1		1		2		31	30	61
Lübeck	2		1		3		110	60	170
Bremen	3		11	1	14	1	40	128	168
Hamburg	2		3		5		70	100	170
Alsace-Lorraine	15		10	5	25	5	410	475	885
The German Empire	249	36	250	113	499	149	7,374	6,841	14,215

The following table indicates by number of schools the relative attention paid to each branch taught:

Branches taught in German manual-training schools.

Branches taught.	Absolute number of schools.			Per cent of schools.		
	Independent.	Annexes.	Total.	Independent.	Annexes.	Total.
Real manual-training work.						
Cardboard work	95	154	229	77	81	73
Wood carving	100	104	204	81	55	65
Bench work	48	39	87	39	21	28
Metal work	7	8	15	6	4	5
Modelling	4	10	14	3	5	4
Other branches.						
Scroll sawing	7	17	24	6	9	8
Stick laying	2		2	2		
Burning in wood		1	1		.5	.5
Inlaid work		1	1		.5	.5
Plaster-of-paris work	1		1	1		.5
Artificial flowers		1	1		.5	.5
Quilt sewing		2	2		1	1
Net knitting		1	1		.5	.5
Working in cloth		1	1		.5	.5
Working in leather		1	1		.5	.5
Working with straw		1	1		.5	.5
Making useful articles		1	1		.5	.5
Drawing	1		1	1		.5
Gardening		12	12		6	4
Trade work.						
Joinery	9	19	28	7	10	9
Braiding		21	21		11	7
Basking braiding	3	11	14	2	6	4
Bookbinding	1	10	11	1	5	4
Turning	5	4	9	4	2	3
Brush making	1	7	8	1	4	3
Tailoring		7	7		4	2
Shoemaking		5	5		3	2
Rope making		4	4		2	1
Broom making		2	2		1	1
Paper hanging		1	1		.5	.5
Blacksmith's work		1	1		.5	.5
Locksmith's work		1	1		.5	.5
Total	124	190	314			

The following table shows what part of the year is devoted to manual training:

Season devoted to manual training.

Schools.	Open during—				
	Whole year.	Winter.	Summer.	Failed to report.	Total.
Independent	100	22	.....	4	126
Per cent	82	18	.....	.....	100
Annexes	143	43	4	12	202
Per cent	75	23	2	.....	100
Total	243	65	4	16	328
Per cent	78	21	1	.....	100

The rates of tuition fees are indicated in the table below:

Semiannual tuition fees in German manual-training schools.

Schools.	Irregular.	1 to 3 marks.	4 to 5 marks.	6 marks.	7 to 10 marks.	12 marks.	18 to 20 marks.	Varying by grades.	Total.
Independent	42	20	4	25	12	9	5	4	126
Per cent	33	15	4	20	10	7	4	.....	100
Annexes	160	12	5	7	13	2	.....	12	202
Per cent	79	6	3	2	7	1	.....	.....	100
Total	202	32	9	32	25	11	5	16	328
Per cent	61	10	3	10	8	3	1	.....	100

NOTE.—The mark is equivalent to a quarter of a dollar United States money. Exact valuation, 23.8 cents in gold.

The following table gives the time each week devoted to work in manual-training schools in Germany:

Number of hours per week taught in German manual training schools.

Schools.	Hours.											
	1.	2.	3.	4.	5.	6.	7 to 10.	11 to 20.	Over 20.	Irregular time.	Not stated.	Total.
Independent	.....	62	15	37	.....	3	.....	.....	.....	5	4	126
Per cent	.....	51	12	30	.....	3	.....	.....	.....	4	.....	100
Annexes	4	56	16	55	5	19	9	8	2	11	17	202
Per cent	2	30	9	30	3	10	5	4	1	6	.....	100
Total	4	118	31	92	5	22	9	8	2	16	21	328
Per cent	1	38	10	30	2	7	3	3	1	5	.....	100

The subsidies for the encouragement of manual training and their sources appear in the next table, expressed in round numbers of marks nearest the exact sums:

Subsidies for German manual training schools.

Paid to—	By State governments.	By municipal governments.	Total.
Independent schools	25,000	40,000	65,000
Societies and private persons	23,000	17,000	40,000
Total	48,000	57,000	105,000

Hence it is seen that the total municipal and State aid for manual training (exclusive of tuition fees and expenditures defrayed by private persons and societies) amount to a little over $25,000. But it must be remembered that there are a great number of industrial, trade, and technical schools in Germany which teach handicrafts. These institutions are not counted in the foregoing statement.

RECENT GERMAN EDUCATIONAL LITERATURE.

The educational literature in Central Europe including only the German-speaking nations, the German Empire, Austria, and Switzerland, has been very copious in recent years. Treatises on the theory and history of education, text-books and guides, reprints of classical and modern writings on educational topics are counted by the thousands in one year. A few of these works, being of enduring value, are mentioned here, with a brief statement of their contents. No criticism is attempted or intended. The article of Mr. Scherer in this volume on the subject of "Currents in education" will supply the criticism. Mr. Scherer seems to be recognized in Germany as an educational authority, and in national conventions of teachers he is recognized as the man upon whose shoulders the mantle of Friedr. Dittes has fallen.

(1) "*Das gesamte Erziehungs- und Unterrichtswesen in den Ländern deutscher Zunge.*" Im Auftrage der Gesellschaft für deutsche Erziehungs- und Schulgeschichte, herausgegeben von Karl Kehrbach. Berlin, 1895.

This is a bibliographical list, with statement of contents of all books, essays, and governmental decrees or laws, issued monthly, concerning German education and pedagogical science. It contains also information of devices of teaching. The value of this new publication lies in the fact that it omits nothing of note. All the German educational journals are made to contribute to this work.

(2) "*Zeitschrift für Philosophie und Pädagogik,*" herausgegeben von O. Flügel und W. Rein. Langensalza.

This is a quarterly, representing, as far as education is concerned, the Herbartian school of pedagogy. Professor Rein, of Jena, is the educational editor. Thus far three volumes have appeared.

(3) "*Academische Revue,* Zeitschrift für das internationale Hochschulwesen," herausgegeben von Dr. Paul von Salvisberg. Munich.

This monthly discusses important university questions, and gives statistical news of the higher seats of learning of all the nations of the civilized world.

(4) "*Geschichte des Schul- und Bildungslebens im alten Freiburg,*" von Franz Heinemann. Freiburg.

This book may be considered a building stone for the future history of education. It gives the history of the educational efforts of a single city, beginning with the twelfth century. The author produces undeniable evidences for his statements in form of documents from the city archives. He closes his narration with the close of the sixteenth century.

(5) "*Pädagogische Schriften,*" von Joh. Friedrich Herbart, herausgegeben von Fr. Bartholomäi. Langensalza.

This is a new edition of Herbart's educational works, with explanatory remarks by the editor. Thus far only one volume has appeared.

(6) "*Sämmtliche Werke,*" von Joh. Friedrich Herbart, herausgegeben von G. Hartenstein. Band XIII. Leipzig.

This is the last volume of Herbart's work, and contains posthumous writings and other brief essays of Herbart not published before.

(7) "*Monumenta Germaniæ Pædagogica*," Vol. XVII, herausgegeben von Karl Kehrbach. Berlin.

This volume contains the history of military education in German-speaking nations.

(8) "*Heinrich Pestalozzi, 1746–1827.* Eine biographische Skizze," von O. Hunziker. Zürich.

The life of Pestalozzi is here described in six chapters by the custodian of the Swiss Pestalozzi museum.

(9) "*Vater Pestalozzi.*" Bilder aus seinem Leben, von Friedrich Polack. Bonn.

This is a popular little book designed to be used as supplementary reading matter.

(10) "*Grundzüge einer Sozialpædagogik und Sozialpolitik.*" von Karl Fischer. Eisenach.

The author attempts to show that both individual and social pedagogy is to a great extent determined and influenced by the science of biology: biology, in fact, is to him simply an enlarged pedagogy.

(11) "*Gewissen und Gewissensbildung,*" von Reinhold Seeberg. Erlangen.

The author starts out with the customary definition of conscience as the voice of God in man, and declares it useless. He concludes that it is moral consciousness.

(12) *Organisation und Lehrplan der mehrstufigen Volksschule* nach den Forderungen der Gegenwart, von Fr. Brüggemann. Berlin.

The author claims that no demands except those of the science of pedagogy should be heeded in framing the course of study of graded elementary schools. The common school as an organ of the social body must have an ethical ideal, in the service of which all instruction should be placed.

(13) *Organisation und Lehrplan der mehrstufigen Volksschule* nach den Forderungen der Gegenwart, von Wilhelm Reinke. Berlin.

This book is chiefly devoted to the organization and management of graded schools. It is a plea for adapting the common schools more and more to modern changed conditions of life.

(14) *Schule und Vaterland*, vaterländische Worte für Jung und Alt, von M. Evers. Barmen.

This is a collection of orations delivered at festive occasions.

(15) *Grundriss der Psychologie*, von Wilhelm Wundt. Leipzig.

Professor Külpe says of this book: "Psychology begins to descend from its lofty standpoint of exclusive scientific interest. A general desire for psychological information is noticeable. In the court rooms psychological processes are becoming quite numerous. In the literature of fiction a psychological tendency is seen, and in the State medical examination students in Germany have to undergo an ordeal in psychiatry. This proves the necessity of such a book as Wundt's."

(16) *Einführung der Pestalozzischen Methode in Preussen*, von Bruno Gebhardt. Berlin.

This work describes the efforts on the part of the Prussian Government, prompted by Queen Louise, to regenerate the people through public education after the battle of Jena. It shows the work of Wilhelm von Humboldt, the first minister of education in Prussia, and his able assistants, who popularized Pestalozzi's educational theories and methods.

(17) *Robinson als Stoff eines erziehenden Unterrichts*, von A. Pickel. Leipzig.

The author is a noted Herbartian. He gives preparations for lessons on Robinson Crusoe as central lessons in the development of the emotions (sittlicher Unterricht).

(18) *Die Willensfreiheit*, von Dr. Paul Michaelis, Berlin.

After an historical review over the most important attempt to solve the problem of freedom of the will, the author tries to show that the idea of "liberum arbi-

trium indifferentiæ" is untenable, and that there is neither in the physical nor in the Kantian metaphysical sense anything like a freedom of the will.

(19) *Psychologie mit Anwendung auf Erziehung und Schulpraxis*, von Dr. Jahn, Leipzig.

In normal schools psychology should not be treated as an abstract science, but as a practical school science. From examples taken from history and poetry, from observations and experiences in life and the schoolroom, the most important psychical phenomena and their laws are derived.

(20) *Kaufmännisches Fortbildungs-Schulwesen*, von Dr. Stegemann, Braunschweig.

Shows what is being done in Germany and other countries in regard to business education, and gives evidence of the rapid progress commercial schools are making everywhere, particularly in Germany. The book has been suggested by the boards of trade of the business centers of Germany.

(21) *Die Psychologie in ihrer Anwendung auf die Schulpraxis*, von B. Maass, Breslau.

Psychological phenomena are in this book shown in well-known examples taken from biblical history, from the reader, or from daily life. The book is intended for the use in normal schools.

(22) *Geschichte des gelehrten Unterrichts*, von Dr. Friedrich Paulsen, Berlin. Second edition.

The author has revised and greatly enlarged his work in this edition, and lays more stress upon recent developments of secondary and higher education in Germany. The book is a most thorough historical review of higher education known in the educational literature of any country.

(23) *Frauengestalten in der Geschichte der Pädagogik*, von Karl Supprian, Leipzig.

This is an attempt at showing what woman has done in the educational reforms of the nineteenth century. The author shows how women have influenced the education of the civilized nations, giving due credit to the men who originated ideas.

(24) *Das ästhetische Erziehungs-System*, von Dr. A. Wittstock, Leipzig.

A book in which the æsthetic side of education is emphasized, perhaps too urgently, but certainly with the best of intentions. The author defines æsthetics as the "science of emotions," and upon this ample definition he construes a system of teaching which will lead toward ennobling the human race.

(25) *Erziehungs und Unterrichtslehre für höhere Mädchenschulen*, von Dr. B. Ritter, Weimar.

The fact that the promoters of higher education of women in Germany claim a separate course of training for girls, one differing from that of boys in paying attention to the inevitable differences in sex, has led the author to write this handbook of pedagogy for girls. The book has found both warm commendation and adverse criticism in Germany.

(26) *Die Lebensanschauungen der grossen Denker*, von Rudolph Eucken, Leipzig. Second edition.

This standard work of the professor of Jena is materially changed in its second edition. It is a history of development of the problem of life from Plato to the present time, and will aid teachers in ascending to a higher level for the contemplation of life.

(27) *Die Pädagogik von Pestalozzi*, von H. Scherer, Leipzig.

This is the first volume of the work School Inspector Scherer speaks of in the article printed at the head of this chapter. It attempts to show education in its connection with the entire intellectual life of the German and other nations.

(28) *Die Geschichte der deutschen Universitäten*, von Georg Kaufmann, Stuttgart.

The first volume of this work appeared in 1888, the second in 1896. While the first gives the "Vorgeschichte," the second ends with the close of the Middle Ages. The work is frequently quoted in the European educational press.

(29) *Geschichte der Pädagogik*, von Karl von Raumer, Gütersloh. Fifth volume.

This is the fifth volume of Raumer's history of education, and contains the biographies of educators of the eighteenth and nineteenth centuries. This new volume is prepared by Dr. G. Lothholz, who faithfully continues Raumer's famous work.

(30) *Pädagogische und didactische Abhandlungen*, von Dr. O. Frick, Halle.

The former director of the Francke-Stiftungen, in Halle, published a number of essays, which are here collected in two volumes and published by his son, Dr. Georg Frick. These essays mostly refer to questions arising from the prominence Herbart's philosophy and pedagogy acquired in Germany during the last twenty years.

COMPARATIVE STATISTICS OF EDUCATION.

INTRODUCTION.

To state the actual conditions of education of a country for a given year in an array of numbers and well-arranged tables is doubtless a meritorious undertaking, but for the purpose of gaining valuable knowledge such a presentation is insufficient. The most fruitful sources of information are comparison and contrast. If, therefore, the absolute numbers are accompanied by ratios which allow a comparison of any separate item of information with others on a uniform scale, the presentation will be much better. Thus, for instance, it is well enough to know that a country has a certain number of teachers and pupils in attendance at school, but better it would be to accompany the actual number by a statement showing the ratio per hundred or thousand of the population. Or, if it were found that a State had a certain aggregate number of pupils in elementary and another in secondary schools, the statement would be greatly improved by showing that the first number amounts to 95 per cent, the second to 5 per cent, or whatever other ratio it would prove to be.

Still better would be the statements if they were given for a number of years, which would allow the computation of a ratio of progress. This would offer an unfailing standard of measurement for the progress of that country. For the statistician, however, such material would still appear isolated, and he would want to place the information of uniform character into line and compare various countries by a uniform standard of measurement.

There are very few items of educational statistics that can be subjected to a uniform standard of measurement. The educational institutions of different countries vary in scope and organization, so that uniformity in statistics can not be attained except, perhaps, in enrollment, attendance, and expenditures. These the annual reports of the Bureau of Education have published for several years. In the present article the final result of statistical surveys over a long period of years is presented. The greater part is the work of Prof. E. Mischler, of Strassburg, Germany. At the outset it must be stated that the statistics he offers are not in every case the most recent, owing to the fact that he desires to place the various countries as nearly on a level as he can, to apply a uniform standard.

The following summaries of the systems of education in the civilized world are intended to contain the most important data concerning institutions, teachers, and enrollment, derived from the statistics of a longer period than is commonly considered. These summaries are offered in the briefest possible form.

It has not in any case been possible to present the entire system of education, especially not with reference to secondary and special schools. Great gaps in the statistical structure here presented are noticeable. However, the data covering elementary schools are given, and in most cases those of university education also.

The statistical sources available are often very dissimilar, and they are not by any means the most copious and best where culture has reached the highest degree of development. It would seem as though the consciousness of success quenches the desire to review actual conditions.

The sources used for the present review are stated under the heading of each section. M. E. Levasseur's meritorious statistical work concerning elementary education (see Bulletin de l'Institut International de Statistique, tome VI, livr. 2, 1892) has been consulted frequently, because his statements rest for the most part upon direct authentic information.

These international comparative reviews are partly based on Levasseur's work, partly on the author's former compilations, and partly also on official sources. The translator substitutes later dates in a few instances when by so doing the author's object of placing the various nations on a level is not defeated.

I.—ELEMENTARY SCHOOLS.

Of the various categories of educational institutions few permit statistical comparison. They are chiefly those which agree in aims and objects to be attained, namely, the schools, variously called public, people's, primary, and elementary, and intended to give an elementary education to children of 6 or 7 to 12 or 14 years of age. In most countries advanced grades of elementary schools, such as grammar and burgher schools, are included in the generic term elementary schools. There are differences in the various countries in the method of teaching, and, to some extent, in the matter of instruction in these institutions, but for purposes of statistical comparision these internal differences may be left out of consideration, since they all serve the well-understood purpose of establishing an average measure of intellectual culture, the minimum of education requisite for the fulfillment of the duties of citizenship.

The following table presents first in absolute numbers the number of public schools, teachers, and pupils, with exclusion of all private institutions, except in a few cases.

TABLE 1.—*Number of schools (public elementary only), teachers, and pupils.*

Country.	Year.	Schools.	Teachers.	Pupils.
England	1890	19,498	45,434	4,341,364
Scotland	1890	3,076	7,745	664,466
Ireland	1880	8,251	(?)	507,865
Netherlands	1889	2,952	10,931	454,926
Belgium	1890	5,673	11,795	616,091
France	1890	67,859	106,247	4,405,543
Prussia	1886	34,016	70,522	5,005,116
Saxony	1889	2,205	10,102	578,794
Baden	1890	1,580	3,668	274,803
Bavaria	1890	7,141	a 23,376	834,829
Switzerland	1890	(?)	a 9,239	476,101
Austria	1893	17,619	a 43,708	a 2,872,929
Hungary	1889	a 16,702	a 21,738	a 2,015,612
Italy	1889	44,664	45,694	2,059,389
Sweden	1889	10,516	12,519	651,313
Norway	1888	6,282	4,906	259,239

a Including private schools and their teachers and pupils.

If we deduce relative values from the foregoing absolute numbers and other available sources as shown in the following tables, it will be seen that the differences between the countries mentioned is not very great, despite the divergences

in their school systems. Between 100 and 150 lies the average number of inhabitants provided with one school. Where the number deviates from the average peculiar circumstances prevail, as, for instance, in Great Britain (222) and in Scandinavia (owing to its ambulatory schools). Rarely are less than 50 and never more than 100 children assigned to one teacher, and the quota of pupils to every 1,000 inhabitants is generally between 120 and 170. But these averages are dependent upon the ages represented in each community, as well as upon the frequent or infrequent attendance of other than public schools.

TABLE 2.—*Numerical relation of elementary pupils to (a) schools, (b) teachers, and (c) the number of inhabitants.*

Country.	Year.	Number of pupils to—		
		One school.	One teacher.	Every 1,000 inhabitants.
England	1890	a 222	a 85	a 150
Scotland	1890	a 216	a 86	a 165
Ireland	1889	a 101	(?)	a 103
Netherlands	1889	152	42	143
Belgium	1890	a 109	a 53	100
France	1890	68	37	144
Prussia	1886	144	66	170
Saxony	1880	256	54	167
Baden	1890	172	74	163
Bavaria	1890	116	36	149
Switzerland	1890	(?)	(?)	a 168
Austria	1890	154	66	120
Hungary	1889	121	93	116
Italy	1889	43	41	75
Sweden	1889	a 62	a 52	140
Norway	1898	a 47	a 50	a 148

a Only public schools.

NOTE.—The results of Signor L. Bodio's calculations, published in his book "Di alcuni misuratori del movimento economico in Italia," show comparatively slight deviations from the foregoing table.

TABLE 3.—*Numerical relation of pupils to the number of inhabitants.*

Country.	Year.	Pupils in every 1,000 inhabitants.	
		In all elementary schools.	In public elementary schools only.
England	1889	(?)	154
Netherlands	1888	143	101
France	1887	145	116
Belgium	1889	(?)	109
Prussia	1886	178	176
Switzerland	1888	178	(?)
Austria	1889	125	(?)
Italy	1889	76	70
Spain	1885	96	83

TABLE 4.—*Expenditures for public elementary schools.*

Country.	Expressed in million francs.	Per capita of the population.		Per capita of pupils.	
		Francs.	Dollars.	Francs.	Dollars.
England	183	6.30	1.22	42	8.11
Ireland	23	4.89	.94	45	8.69
Netherlands	24	5.32	1.06	53	10.23
Belgium	27	4.50	.88	44	8.49
France	173	4.43	.85	39	7.53
Prussia	196	6.54	1.26	39	7.53
Saxony	23	6.57	1.27	40	7.72
Baden	7	4.37	.84	25	4.83
Bavaria	20	3.58	.69	(?)	(?)
Switzerland	19	6.48	1.25	40	7.72
Austria	103	4.48	.86	34	6.56
Hungary	37	2.12	.41	18	3.48
Italy	62	2.07	.40	30	5.79
Sweden	17	3.55	.69	26	5.02
Norway	3	1.61	.31	11	2.12

The expenditures for public school purposes range between 3½ and 6½ francs (67 cents and $1.25) per capita of the population, if we exclude the States in which the school system is not very extended, such as Norway, Italy, and Hungary. The following table shows in what proportion the communities, States (or provinces), and the national government contribute to the expenses of public elementary schools.

TABLE 5.—*Percentage of participation in defraying expenses for public elementary schools.*

Country.	Communities.	States or provinces.	Nation.
Netherlands	61	----	39
Belgium	55	6	39
France	41	11	48
Switzerland	70	----	30
Austria	61	38	1
Hungary	88	----	12
Italy	89	1	10

II.—NORMAL SCHOOLS.

The data collected in the two following tables on normal schools are made uniform as far as possible. Age of students and length of course are left out of consideration. A special feature of the preparation of teachers is the proportion of female students. It must be borne in mind that in some countries women are employed as teachers chiefly for special branches (female handiwork, drawing, girls' gymnastics), for which they receive no preparation in normal schools, hence the number of female normal school students does not show the same proportion

with the number of female teachers employed. The following tables give the absolute numbers and the ratios:

TABLE 6.—*Students in normal schools by sex.*

Country.	Year.	Males.	Females.	Total.	Ratios.	
					Males.	Females.
					Per cent.	*Per cent.*
Prussia	1892	10,133	*a* 1,500	11,133	85	15
Bavaria	1890	2,616	433	3,049	86	14
Wurtemberg	1892	823	64	887	92	8
Baden	1892	389	87	476	82	18
Austria	1892	6,723	3,896	10,619	63	37
Hungary	1886	2,579	1,033	3,612	71	29
Croatia	1884	179	154	333	54	46
Netherlands	1889	1,412	920	2,332	61	39
Belgium	1892	295	403	698	42	58
Sweden	1892	552	449	1,001	55	45
France	1887	1,709	1,118	2,827	60	40
Italy	1892	2,135	15,894	18,029	12	88
Finland	1890	*a* 200	*a* 200	400	50	50

a Approximately.

TABLE 7.—*Teachers in elementary schools by sex.* (*a*)

Country.	Year.	Males.	Females.	Total.	Ratios.	
					Males.	Females.
					Per cent.	*Per cent.*
Prussia	1888	58,702	6,848	65,550	90	10
Saxony	1893	8,642	544	9,186	94	6
Baden	1892	3,481	240	3,721	93	7
Austria	1892	31,704	16,781	48,485	65	35
Hungary	1889	21,356	3,289	24,645	87	13
Croatia	1884	1,388	531	1,919	72	28
Switzerland	1890	6,196	3,043	9,239	67	33
Netherlands	1889	11,250	3,942	15,192	74	26
Belgium	1890	6,627	5,168	11,795	56	44
Sweden	1892	5,486	8,549	14,035	39	61
Norway	1890	3,941	1,187	5,128	77	23
Scotland	1890	12,994	129	13,123	99	1
France	1890	65,312	86,538	151,850	43	57
Finland	1890	654	731	1,385	47	53

a These figures are not conclusive, since it must be remembered that many of the women teachers enumerated in column 3 teach special branches only and have no professional training as teachers, while the men are teachers in name and fact.

Statistics of secondary education must be omitted, since it is absolutely impossible to collect the numbers under uniform heads, the schools not being State institutions in many countries, and where they are so they are of such varieties that it would be manifestly unjust to classify them uniformly.

III.—HIGHER EDUCATION.

The various university calendars contain the number of students in the universities and show slight variations between those attending in summer and those in winter. The statistics are invariably obtained by direct communication with the questor or the secretary of these institutions. Hence they may claim absolute accuracy. Moreover, the possibility is given to compare from year to year the attendance and show the ratio of progress or retrogression. The following tables are obtained from the fourth volume of Minerva, Yearbook of the Learned World, Strassburg, 1895.

The efforts of the authorities in Italy to decrease the number of universities of that country have given rise to an animated discussion of attendance of universi-

ties and the cost of higher education. The minister of public instruction in Italy—Signor Martini—has added valuable material to this discussion.

TABLE 8.—*Number of matriculated students and hearers in winter of 1893–94.*

A. UNIVERSITIES.

Berlin (4,735 hearers)	8,343	Bologna	1,384	Klausenburg	644
Madrid (2,906 hearers)	5,867	Brussels	1,361	Zurich	625
Vienna (3,913 hearers)	4,856	Tokyo	1,342	Berne	617
Naples (4,732 hearers)	4,822	Prague (German)	1,316	Genf	598
Moscow	3,967	Pavia	1,247	Sidney	598
Budapest	3,892	Breslau	1,238	Giessen	541
Munich	3,408	Crakow	1,227	Groningen	540
Athens	3,331	Charkow	1,207	Basel	517
Oxford	3,232	Warsaw	1,176	Kiel	515
Leipzig	3,067	Dublin	1,151	Toronto	500
Edinburgh	3,064	Tübingen	1,151	Odessa	492
Manchester	3,000	Amsterdam	1,129	Messina	456
Cambridge	2,839	Lemberg	1,128	Agram	451
Prague (Bohemian)	2,722	Freiburg	1,117	Belgrade	442
St. Petersburg	2,675	Erlangen	1,107	Adelaide	433
Kiew	2,358	Strassburg	1,012	Rostock	420
Turin	2,239	Genoa	990	Lausanne	416
Glasgow	2,080	Leiden	990	Jassy	407
Barcelona	1,887	Heidelberg	960	Durham	400
Halle	1,859	Manila	925	Parma	372
Helsingfors	1,802	Aberdeen	912	Modena	354
Rome	1,752	Pisa	905	Czernowitz	316
Louvain	1,650	Marburg	837	Siena	236
Graz	1,578	Innsbrück	825	Perugia	226
Upsala	1,569	Göttingen	800	Freiburg (Switzerland)	196
Dorpat	1,555	Kasan	784	Cagliari	191
Bucharest	1,490	Melbourne	759	Camerino	144
Palermo	1,488	Greifswald	757	Sassari	139
Padua	1,474	Utrecht	750	St. Andrews	113
Liége	1,470	Catania	748	Ferrara	95
Christiana	1,450	Lund	688	Amsterdam	93
Bonn	1,442	Jena	682	Urbino	93
Würzburg	1,442	Ghent	672		
Coimbra	1,439	Konigsberg	658		

The foregoing numbers offer an opportunity to find the proportion of the number of universities to the population, and this is the order:

Country.	Proportion.		Country.	Proportion.	
	Universities.	Inhabitants.		Universities.	Inhabitants.
Russia	1	12,300,000	Denmark	1	2,100,000
Hungary	1	5,000,000	Spain	1	1,760,000
Portugal	1	4,800,000	Sweden	1	1,750,000
England	1	4,140,000	Norway	1	1,750,000
Bulgaria	1	3,200,000	Ireland	1	1,670,000
Austria	1	2,800,000	Belgium	1	1,500,000
Greece	1	2,800,000	Italy *a*	1	1,430,000
Roumania	1	2,800,000	Netherlands	1	1,120,000
Germany	1	2,470,000	Scotland	1	1,000,000
Servia	1	2,100,000	Switzerland	1	540,000

a If the 4 free universities are not counted, the ratio is 1,770,000.

In the following comparison isolated faculties as they are found in Hungary are disregarded, while those of France are counted, in order to obtain numbers comparable with those of other countries. The university college at Dundee, Scotland, is not counted, while for Ireland 3 universities are counted. For Germany the academy at Münster is not counted; but on the other hand the legal faculties that constitute the universities of Macerata, Italy, and Oviedo, in Spain, are included. For France 15 universities are counted, according to more external considerations.

(For statistics of higher education in the United States the reader is referred to special statistical tables found in this annual report.)

The number of universities, it must be said, is not a good standard measurement for the extent of higher education. The number of students is indeed the

better measurement. In taking this latter number, however, it should be carefully considered that in every case both the matriculated students and the hearers are included, because if that deduction were made in Germany, where the distinction between matriculated students and hearers is sharply maintained, it would be an injustice to that country, because in other States the distinction is not made in the statistics of attendance. Again, it may be concluded that among the hearers there are many foreigners, and hence the differences may be equalized by counting in all the students. With these reservations and explanations the following proportions are found:

Country.	Proportion.		Country.	Proportion.	
	University students.	Inhabitants.		University students.	Inhabitants.
England	1	1,512	Austria	1	1,722
Germany	1	1,580	Italy	1	1,756
France	1	1,083	Hungary	1	3,600

The numerous colleges, academies, detached faculties, independent faculties, and mere examination universities or boards are found in the following table:

TABLE 9.—*Number of students in French "facultés," colleges, and academies in winter of 1893-94.*

1. FRENCH "FACULTÉS."

Paris	10,164	Rennes	971	Algier	406
Bordeaux	1,974	Poitiers	851	Dijon	368
Lyons	1,812	Nancy	738	Besançon	224
Toulouse	1,347	Caen	598	Clermont	189
Montpellier	1,315	Aix	581		
Lille	1,118	Grenoble	511		

2. EXAMINATION BOARDS.

Madras	7,906	Calcutta	5,308	Bombay	1,661
London	6,000	Allahabad	2,075	Lahore	839

3. COLLEGES, ACADEMIES, AND INDEPENDENT FACULTIES.

Nottingham, college	1,902	Jaroslawl, lyceum	203
London, university college	1,500	Kiew, theological academy	177
Edinburgh, medical school	1,000	Cardiff, college	170
Petersburg, medical school	742	Stockholm, university	160
Birmingham, college	700	Macerata, law faculty	153
Bristol, college	482	Lampeter, college	135
Florence, college	457	Grosswardein, law academy	119
Münster, academy	414	Pressburg, law academy	113
Stockholm, medical school	316	Florence, female college	110
Tonesk, medical faculty	302	Rome, female college	105
Petersburg, law school	300	Dundee, college	89
Aberystwith, college	280	Milan, literary and scientific academy	84
Sophia, college	275	Kashaw, law academy	82
Newcastle, college	264	Salzburg, theological faculty	77
Cork, college	245	Montauban, theological faculty	62
Olmütz, theological faculty	238	Erlau, law academy	61
Oviedo, law faculty	222	Gothenburg, university	45
Sheffield, college	211	Braunsberg, theological lyceum	41

NOTE.—The secondary schools in the various countries show so great a variety or classification that a comparison such as is shown for elementary and higher education is impossible.

CHAPTER VI.

COMMERCIAL EDUCATION IN EUROPE.

CONTENTS.—Commercial schools in Germany, Austria, England, Switzerland, France, Belgium, and Italy; their history and present status.

IN GERMANY, AUSTRIA, ENGLAND, SWITZERLAND, FRANCE, BELGIUM, AND ITALY.

An article on "Industrial education in Germany" contained in last report of this Bureau (see p. 1215, Vol. 2, Annual Report of 1895–96) shows what efforts Germany and other German-speaking nations are making in preparing young men and women for skilled labor, art, and technical pursuits, in order successfully to compete with other nations in building up a remunerative industry, and in gaining the markets of the world for their products. Naturally the commercial schools were mentioned incidentally. Statistics of such schools were given, without, however, attempting an exhaustive statement of their organization, courses of study, and management; nor can this be done now without a description of some of the 247 commercial institutions of secondary or elementary character, owing to existing diversity, an attempt which would be beyond the scope of this office. Teachers who are interested in this will find the desired information in a book written by Prof. Edmund J. James, entitled Education of Business Men in Europe,[1] and in a German publication entitled "Kaufmännisches Fortbildungsschulwesen," by Dr. Stegemann, in Braunschweig.

In the latter-named book, published in 1896, a description of each commercial school in Germany is given with a minute statement of the course of study and other details. The book is the result of an inquiry of the boards of trade of the most prominent commercial and industrial cities of the Empire. The editor regrets that few of these schools agree in their courses of study, but he seems to overlook the fact that each community has individual needs which, to a certain extent, determine the branches of study in both the industrial and the commercial institutions.

Commercial education—that is, a special training for young men[2]

[1] Reprinted in the Report of this office for 1895–6, Vol. 1, pp. 721–838.

[2] It has not been found desirable in Germany to invite women to prepare themselves for mercantile pursuits, although for service in the countinghouse, for shorthand and typewriting, they are frequently employed.

who intend to devote themselves to commercial pursuits—has a comparatively brief history, and the system, if we may speak of a system, has not reached that degree of perfection which is found in other departments of public education. It may be said to be still in its infancy. The Germans are quite aware of this, and, situated as they are in the center of Europe, they look about themselves to note what other nations have done and are doing. It is a characteristic feature of the Germans that for whatever they undertake they prepare a long way ahead. They are not impulsive reformers, but proceed systematically upon the basis of what exists, changing it as times and conditions of life demand. At present the various governments of the 26 States that constitute the German Empire are employed in improving and extending their agricultural, industrial, and commercial schools to enable the people to compete with their neighbors in the world's market.

An Englishman, Sir Philip Magnus, in a work on industrial education, expresses himself on this point with felicitous frankness. He says:

The commissioners tell us that the increasing severity of the competition, both in our home and in neutral markets, is especially noticeable in the case of Germany, and in every quarter of the world the perseverance and enterprise of the Germans are making themselves felt. In the actual production of commodities we have few, if any, advantages over them, and in the knowledge of the markets of the world, the desire to accommodate all local tastes and idiosyncrasies, a determination to obtain a footing wherever they can and the tenacity in retaining it, they appear to be gaining ground upon us.

This advance of German trade does not appear to be owing to any falling off in the efficiency of the British workmen, but solely to the superior fitness of the Germans, due exclusively to the more systematic training they receive for mercantile pursuits. The commissioners tell us that while in respect to certain classes of products the reputation of our workmanship does not stand as high as it formerly did, those who have had personal experience of the comparative efficiency of labor carried on under the conditions which prevail in England and foreign countries appear to incline to the view that the English workman, notwithstanding his shorter hours and higher wages, is to be preferred. They further state that in the matter of education we seem to be particularly deficient as compared with some of our foreign competitors, and this remark applies not only to what is called "technical education," but to the ordinary commercial education which is required in mercantile houses, and especially the knowledge of foreign languages.

The recommendation of the commissioners that Her Majesty's consular and diplomatic officers should be instructed to report any information which appears to them of interest as soon as they obtain it, and that it should be as promptly published at home when received, has resulted in the publication of a series of reports which fully bear out the conclusion at which the commissioners have arrived in regard to the deficiencies of our commercial education; to the activity displayed by persons in the search of new markets, and the readiness of manufacturers abroad to accommodate their products to local tastes and peculiarities. In several of these reports attention has been called to the importance of possessing an army of commercially trained agents, who are able to discover foreign markets, to inform English manufacturers in regard to the requirements of these markets, and to follow the style of homemade goods.

In order to see how it is made possible for German merchants to "storm the foreign markets," it may be well to look at a course of study designed for commercial training. It is a course in vogue in the higher mercantile institutions in Germany and Austria. The branches are those of a one year's course: Foreign languages (English, French, and Italian), political economy, commercial law, commercial geography and statistics, bookkeeping, commercial and political arithmetic, knowledge of international commerce, and knowledge of merchandise. The last two subjects bear particularly upon the question at issue between England and Germany, and because they are of more than passing interest to American readers they may here be stated in detail.

Knowledge of international commerce.—The object of the lectures on this subject is to give the student a concept of the world's commerce, and to equip him with such knowledge as is necessary to successfully engage in international trade.

In these lectures are treated:

The origin of the produce exchange; its divisions and organization; the brokers and their position on the exchange; legitimate commercial transactions on the exchange, and exchange boards of arbitration.

The legal regulation of a system of weights and measures; the metric, English, Russian, and Chinese systems of weights and measures with special regard to their position in the world's commerce; the system of weights and measures of the Orient.

The method used to determine quality in the international grain trade; method of determining quality of yarn and silk in international commerce (numbering yarn and silk titration); alcoholometry and number measuring (dozen, score, etc).

The systems of money of those European countries through which balances with transmarine countries are mainly adjusted; in addition, the state of the money standards, bills, and currency quotations in North, Central, and South American markets; also the Eastern Asiatic and Australian markets, and, finally, the money standard in the Orient.

The transportation of goods by railroads and rivers, considering the traffic rules; the railroad fares and freight rates; classification of freight in Austria-Hungary, Germany, and France; international tariff associations; international service, together with the necessary documents.

Ocean transportation of freight, subdivided into registering, classifying, and measuring ocean vessels; the manifest; the book of cargo and the bill of lading; letter of conveyance; charter party; tonnage; fixing freight rates; the most important steamship companies, their lines and fares; marine freight insurance.

The price quotations of the most important articles of commerce (grain, flour, spirits, petroleum, cotton, coffee, sugar) on the world's market, together with the usages in vogue for cash and time sales. Explanation and computation of equivalent prices, and the construction of equivalent price tables.

The explanation of the settlement of balances by exports and imports, to be illustrated by a series of examples taken from actual transactions. (The basis of these lessons is a book by Dr. Sonndorfer, "Die Technik des Welthandels," Handbuch der Internationalen Handelskunde. Vienna.)

Knowledge of merchandise.—On the basis of the advanced preparatory study of the natural sciences, and after introductory remarks (system, methods of investigation, microscopy, polarimetry, structural arrangement of organic, vegetable, and animal substance) from the purely commercial standpoint, the products of the world's market are considered according to their natural history and physical and

chemical characteristics. After being classified their external and internal marks of genuineness and their adulteration and substitutes are considered. After this preparation the entire animal, mineral, and vegetable products are separated into their organic branches and discussed; but certain home articles of export and import are given special attention (groceries, foods, luxuries, drugs, raw materials, manufactures of textile industries, and tanneries), besides inorganic products technically applied (coal, petroleum, and metals).

In addition special instruction on the adulteration of food and its detection is given.

Training in the use of the microscope.—Microscopical tests are thoroughly carried out for determining raw material and manufactures. The material for these microscopical examinations is taken from the collection of products and from objects sent to the school by merchants. To aid in the demonstrations and practical exercises, there are (*a*) a special laboratory for the study of merchandise, with a sample collection for direct use during the teaching, (*b*) a museum of merchandise, and (*c*) a professional library.

Insurance.—Insurance in general, insurance companies, mutual and stock companies, granting of charters to them, the State's control of them, laws relating to insurance, and fees to the State; insurance against damage; transportation, fire, hail, and animal insurance, also reinsurance; life insurance, insurance payable at death or at certain age; mutual insurance against sickness or helplessness and accident; computing the premium, the reserve, redemption, loans, policies, and reductions; the insurance business in its practical workings, closing accounts, (profit, loss, and balance sheets).

It is no wonder that commercial agents thus prepared can go into foreign countries and open up the markets for German goods. They speak to the people in their own tongues, adapt their consignments to the special wishes of the purchasers, with regard to both the quality of the goods and the manner of their packing, and with tenacity keep open a market where they have once gained a foothold. The foregoing abstract from a German course of study proves incontrovertibly that preparation is the secret of success in commercial affairs as it is in art and industry.

In searching for material which would demonstrate to the American reader what European nations are doing in commercial schools, a pamphlet on the subject was found of much service, written by Prof. Ludwig Fleischner in Budweis, Bohemia, Austria, who treats the subject in a way which will commend itself to the interested reader. He shows what the people in England, France, Austria, Italy, Belgium, and Switzerland are doing in the preparation of commercial men, and he incidentally offers comparisons which may prove helpful in this country. He says in introducing his survey here given entire with the exception of a few paragraphs:

The immense progress the natural sciences, technology, and transportation have made in recent years has given to the commercial profession an importance which could not be foreseen in former years. More than ever before has it become the merchant's duty to act as middleman between producer and consumer. In ever-widening circles he has to bring the products of agriculture and industry to their proper markets. By means of increased taxation which commercial enterprises are subject to they support ever more strongly the State

in the discharge of its civilizing efforts. Direct exchange between producer and consumer has almost wholly ceased, and the percentage of the population devoted to commercial pursuits has increased considerably in every civilized country.

Moved by these considerations several European governments have of late years bestowed much attention upon commercial training of young men, and the results thus far obtained give assurance that the further development of schools for that purpose will be commensurate with the demands of the times. Hitherto other professions have been aided by the State, through the establishment and liberal support of institutions of all kinds, while the commercial branch, despite its importance for political economy and public welfare, had received no worthy representation in the educational system of the various European States. Hence it was resolved, as far as available means allowed, to subsidize communities, boards of trade, commercial societies, and other interested bodies which contemplated establishing commercial schools or had done so already.

AUSTRIA.

A brief historic view of the development of the commercial-school system in Austria is not without interest in our country, where such institutions are struggling to rise to a higher plane of usefulness.

The classical high schools in Austria, founded during the Middle Ages and also during the reign of Marie Theresa, did not offer proper instruction to young men intending to devote their lives to commercial pursuits, and, despite the praiseworthy efforts of the Queen in favor of secondary education, the merchants' best preparation was found in the countinghouse and store magazines. In 1762 a few courses of lectures on commercial arithmetic, discount, bookkeeping, and science of government were opened in high schools, which courses were conducted by "piarists" (members of a religious order), and later by civil officers; and in 1763 a course of lectures on financial science was opened in the University of Vienna, with which Joseph von Sonnenfels was intrusted. But these measures did not suffice for the wants of commercial men, since both the high schools and the university had the avowed purpose of preparing civil officers for financial and administrative offices.

In the year 1769 purely commercial training began in consequence of a "manifesto" of the supreme commercial authority of the Empire, the Board of Trade of Vienna, which document pointed out frankly that the preparation of merchants had heretofore received inadequate attention. In 1770 a State institution for the preparation of merchants was opened under the name "Commercial Academy." It received an annual subsidy of 3,000 florins (about $1,500). The institution had two grades of one year each, in which arithmetic, ethics, grammar (and rhetoric), geography, calligraphy, drawing, accounting, commercial science, geometry, natural science, double-entry bookkeeping, and French and Italian were taught. Financial difficulties prevented a vigorous development of the school, which, nevertheless, kept alive as a State institution for over thirty years. In 1804 the school was reorganized and classified among the newly established modern high schools (Real-Anstalten, socalled in contradistinction to classical schools), but in 1815 it again assumed a purely commercial character as a department of the new polytechnic institute, the foundation of

which had been suggested, if not demanded, by a sudden development of commerce and industry in Austria soon after the Napoleonic period.

A further step is worthy of note. In 1852 a number of "Real-Anstalten" (modern high schools) were established by private enterprise, and the one which had hitherto acted as preparatory school for the commercial academy severed its connection with the polytechnicum. The academy thereafter admitted only graduates of "Real-Anstalten," whereby the attendance was greatly diminished. In 1865 the institution had to be abandoned, being superseded by the Vienna City Commercial Academy, which had the identical purpose of the former State institution, while the polytechnicum was raised to the rank of a university, with whose aims, equipment, and methods a commercial course was not thought to be in harmony. But as early as 1840 a Johann Geyer had opened a private institution which was imitated in the principal cities of the country. Other commercial schools of lower order, partly founded by stock companies, partly by private enterprise, have since come into existence and proved to be an important factor in the Austrian educational system.

Legislation also has frequently been attempted in the organization of commercial schools. An important legislative regulation is found in the law of November 20, 1868, for Lower Austria concerning the establishment and maintenance of industrial supplementary schools. According to this law the industrial and commercial schools are subject to the legislature of the crownland, while in other parts of the Austrian Empire they are subject to regulations issued by the minister of public education. A ministerial order of May 14, 1870, refers to the examination of teachers in commercial schools. In February, 1872, an inquiry into the organization of commercial schools was instituted, resulting in a conference which submitted material for a bill which became law February 23, 1873. This law divides all the secondary commercial schools of Austria into public and private, higher and lower schools. A ministerial order of May, 1884, changed the regulations concerning the examination of teachers, and another, dated September 25, 1892, refers to teachers in the lower schools. According to these regulations two kinds of commercial schools, to wit, schools of two and of three year courses were recognized as lower and higher schools, the latter being called commercial academies. A special board for the examination of teachers in commercial schools and academies was appointed for Austria, which board has its seat in Vienna.

By means of these regulations a sharply defined boundary line has been established between the schools of two-year courses and the academies of three-year courses. Special attention is bestowed by the Government upon these lower schools, they being much more numerous than the academies. It must be explained, though, that the difference of one year in the length of the course is not the only reason for calling the one kind of schools lower and the other higher institutions, but pupils of 13 or 14 years of age may enter a lower school with only elementary preparation, while admission to an academy presupposes graduation from a secondary school; hence the entire course of the three-year institutions is of a higher kind. The minister of education, in recommending the passage of the law of 1892, said:

> To bring about the establishment and extension of the system of schools with a two-years' course is a necessity, since commercial clerks have not hitherto been prepared professionally to an extent commensurate with the needs of the commercial world. Hence, wherever communities, boards of trade, and commercial

societies find suitable occasion for opening such schools, the State should do all in its power to aid them in their laudable efforts.

The Austrian Government has done much in aiding the movement with both advice and material support. The best measure seems to have been the appointment of imperial inspectors for commercial schools, who watch over their pedagogic and didactic development. A normal plan of study has given this class of schools a firm foundation, because it was framed according to the needs of the great mass of people, with elasticity enough to meet local demands. This course lays especial stress upon instruction in the mother tongue and modern foreign languages. Furthermore, in order to aid the founders of such schools in their work of organizing and to secure for them a material basis of funds, the minister of public instruction published an organization statute, according to which all the commercial schools of recent origin have been established. The same authority undertook the publishing of a series of uniform text-books, and secured an annual appropriation of 68,000 florins ($34,000) from State funds for the support of commercial schools.

It seems worthy of mention that at present the State is urged strongly by commercial men to establish more higher commercial schools and support them exclusively from State funds. It is argued that the State provides higher industrial, agricultural, forestry, and mining academies for leaders in industry, agriculture, forestry, and mining, while for the mercantile branch no State institution exists. The merchants feel that the education of their assistants is not of such a high order as that of the members of other callings, and they attribute it to the want of institutions of a high order. At present the commercial branch is entirely dependent for the best preparation of its members upon higher schools established by local authority or private enterprise—institutions which charge high tuition fees; hence are attended by wealthy young men only. This opinion found expression in the legislature. During the debate on the educational budget March 8, 1894, Deputy Dr. Hallwich expressed regret that commercial training had as yet received no adequate State support. Of the merchant, he urged, much greater demands are made than formerly, owing to freer commercial movement all over the civilized world, and it would therefore be wise if the State authorities paid more attention to proper preparation of men who might become leaders in commerce, as the State prepares leaders in every other field of human exertion. The speaker recommended this matter to the attention and special care of the Government.

The latest action in this matter was taken by the board of trade and industries in Vienna, and followed a suggestion made by the Vienna society for mercantile interests, to the effect that the Crown ministers be informed of the inadequacy of State support for commercial training. In order to bring about a relief of the overcrowded Vienna Commercial Academy, the board of trade recommended the establishment of several parallel institutions in Vienna. These schools should be so located as to accommodate the students in other parts of the city; they should be granted the same privilege regarding the voluntary (one year's) service in the army, and should be prohibited from charging higher tuition fees than other State secondary schools. The board of trade further expressed the opinion that besides these commercial academies in Vienna, the State should either establish or liberally subsidize a sufficient number of lower commercial schools (of two years' course). Such schools had proved very serviceable to pre-

pare well-trained merchants, and if more were established they might aid in relieving the overcrowded condition of the Vienna academy. The board expressed the hope that the State would establish at least one higher institution of the kind proposed, which might act as a model for the whole country. Lastly, the board proposed that a State organization be called into existence which would induce cooperative action by the many mercantile societies and boards of trade, an organization whose advice should be solicited on all questions concerning the commercial schools of the State.

In 1896 Austria (without Hungary) had—

15 higher commercial institutions (called academies).
20 secondary commercial schools.
6 private commercial institutions, partly secondary and partly elementary.
62 elementary commercial schools and
18 commercial schools connected with other institutions.

In the nature of the case the youngest institutions have still the frailty of infancy, but the tendency of the time and the immense extension of commerce, both inland and international, will strengthen them. The question of technical preparation for commercial pursuits in Austria has been in the hands of well-meaning experts, and it is to be hoped that the reorganization of the system and its adequate expansion will form another chapter of the educational system of which Austria has reason to be proud. A characteristic feature of the commercial institutions of learning in Austria is that they stand upon the solid basis of experience and attempt to meet the just demands of the time. In their organization, course of study, and training they are practical. They do not consider it a fault, but a virtue, in this period of the division of labor, to eliminate all matters not distinctly mercantile and to bestow their attention chiefly upon languages and commercial sciences; in short, upon subjects which are of importance to our present civilization and the calling for which these schools are designed. It will take time to offer for admission candidates with appropriate preparation, i. e., young people who early in life have been destined for commerce, and not those who land in the harbor of a commercial school after having failed in a classical high school. There are too many students yet who enter commercial schools because of insufficient talent or diligence to master the studies prescribed as the preparation for university work. The greater the interest which merchants show in these schools the better will be the students offered for admission.

To complete the survey of Austria it may be stated that in Hungary also new regulations have been issued lately concerning high commercial schools. As in Austria, the authorities in Hungary insist upon graduation from a modern high school (Real-Anstalt) as a condition of admission to a commercial academy, and prescribe a three years' course. The languages taught are Hungarian, German, French (or Italian or English). Aside from languages and common branches, the following studies are taught: Knowledge of merchandise, chemical technology, political and commercial arithmetic, counting-house practice, bookkeeping, correspondence, political economy, and commercial law. The authorities which supervise these schools are the crown ministers of commerce and of public instruction. These authorities send deputies to the graduation examinations, and State inspectors appointed by the minister of public instruction visit these schools at intervals.

ENGLAND.

England has for centuries enjoyed the glory of being the foremost commercial country in the world. It is astonishing, therefore, from the standpoint of continental Europe, to notice that for commercial training of young men the Government in England does less than in any other country. If private enterprise, corporations, and commercial clubs had not taken care of commercial education by establishing appropriate courses in a few secondary schools, primarily founded for other purposes, one would think England had no scholastic commercial training. In this respect Austria, France, and Germany do much more.

A comparison of the English school system with those of the three countries just named will explain this singular deficiency. Before 1850 the Government of Great Britain did not concern itself with public education. Since the Middle Ages the principle has prevailed in the British Isles that the State as such had no more right to interfere in the educational affairs of the people than the people had a duty to tolerate such interference. Even now, after several decades of State education, compulsory attendance is left to local option. In the classical land of self-help and self-dependence schools and other educational institutions of the most varied types originate in private initiative, and only within the last generation has legislation changed and the old principle been abandoned.

At the head of those interested in the promotion of commercial training stands the London Chamber of Commerce, in consequence of whose urgent appeals there has been great activity in behalf of commercial education, and a uniform organization of schools for that purpose has resulted therefrom. A report of Sir John Lubbock proposed, in 1887, a uniform scheme of study for the various commercial courses existing in secondary schools. The London chamber adopted the essential features of Sir John Lubbock's plan by issuing a uniform course of study, which, however, the Government was unable to adopt, owing to its want of jurisdiction in secondary schools; hence the course had to rely upon the initiative of the various chambers of commerce in the large cities of the Kingdom. The support given to it is an indirect one. It consists in this: That the merchants belonging to the chambers of commerce agree to engage as assistants and clerks only those who have had the preparation prescribed in the course mentioned, or at least to give preference to applicants who can prove such a preparation. This course was framed by a committee of the London Chamber of Commerce and adopted by the chamber December 14, 1887. It consists of a "junior course," designed for boys 10 to 16 years old, and a "senior course," for boys over 16. The instruction in the various branches prescribed is to be fashioned to suit the age of the pupil, and the whole time devoted to it must cover a period of six years.

However, a cursory examination of this course of study plainly shows that the Englishmen have not arrived at the same estimate of a thorough commercial instruction prevailing in continental Europe, although the chamber had consulted French and German models in framing the course, to wit, the "plan d'études de l'enseignement special" in vogue in France, and the programmes of the commercial schools in Munich and Leipzig. The English course contains subjects the especial profit and value of which for future merchants is not clearly seen, and, on the other hand, it does not contain studies which

seem indispensable for commercial pursuits. For instance, in the course for the second year (for boys of 11 to 13 years of age) we find drawing (two hours a week), free-hand, shaded construction of geometrical figures and simple objects of daily use, geometrical drawing according to measure, sketching, and india-ink shading. In the third year (for boys of 12 to 14 years) we find drawing (two hours a week), shade projection of cubes, spheres, leaves, and architectural fragments; elements of architectural drawing. These subjects seem out of place in a commercial school, says Professor Fleischner. On the other hand, we miss in the course such subjects as cambistry (science of exchange), political economy, as well as some essential features of bookkeeping and accounting, the importance of which is beyond question in commercial practice. Still, such deficiencies are met by an explanatory remark which accompanies the document, to wit:

This course, together with the time-table attached, is to be regarded merely as a guide, a declaration of principles according to which the chamber would like to see commercial instruction conducted. The detail may be arranged for each year to suit the needs of each school. Full liberty is desirable in this.

After the sixth school year the juniors must submit to an examination in the following obligatory studies, and in at least one optional study: (*a*) Obligatory studies: English and literature, French (eventually German, Spanish, Italian, or Portuguese), history of the commerce of Great Britain and her colonies, commercial geography, arithmetic, mathematics, bookkeeping, drawing. (*b*) Optional studies: Mechanics and hydrostatics, sound, light and heat, electricity and magnetism, organic chemistry, natural history, geometrical drawing, shorthand writing, and Latin. Having passed the examination, the pupil receives a "junior commercial certificate." For pupils of only elementary preparation an examination is held at the close of the third year, which entitles them, if successful, to a "certificate of elementary commercial training."

For the senior course the following obligatory branches are proposed: Foreign languages, that is, two of the following, French, German, Spanish, Portuguese, Italian, and Latin; mathematics, including higher commercial arithmetic and geometry; commercial geography; universal and commercial history; political economy and banking; insurance; commercial and factory laws; drawing and photography; natural sciences, to wit, chemistry, physics, mechanics, mineralogy and petrography, metallurgy, botany, zoology, and the use of the microscope; practical exercises in the laboratory. For this senior course, also, an examination is provided, after which a "higher commercial certificate" is granted. For this examination the following studies are obligatory: Two foreign languages, English and literature, mathematics, commercial history, and geography.

Owing to the omission from this course of studies, of branches absolutely essential for thorough commercial preparation, the plan did not remain without serious opposition on the part of prominent experts. During the general meeting of members of chambers of commerce in 1887, the representatives of the Bristol chamber said that not only prominent school men had denounced the plan of study, but very few chambers, despite their formal approval, had felt impelled to establish commercial schools on the proposed basis. The chambers of Manchester and Edinburgh recently worked out kindred courses of study, which they fashioned after German and French models, with this essential difference, that the courses are intended for both boys and girls.

General approval has been given by people interested in the subject to the emphasis with which the importance for future English merchants of a facility in foreign languages was urged. It was said that English merchants, above all other things, need to learn foreign languages, and he who knows the peculiar conditions of English education will agree that the ignorance of foreign tongues in England is widespread.[1] In Austria and Germany foreign tongues have been the most prominent feature of commercial training.

Of the London schools which adopted the scheme proposed by the chamber of commerce may be mentioned the famous King's College. The institution arranged not only a "senior course" for boys over 15 years of age in evening classes, but also a day-class department preparatory to the evening commercial course. This department prepares merchants, clerks for civil service, and other occupations or professions. In this department the chief attention is paid to the study of German and French. The prospectus of King's College says:

> The special subjects of study in this division are French and German, which are taught colloquially as well as grammatically, and include commercial correspondence. If desired, Spanish and Italian are taught as subjects of private tuition.

The other branches taught in this department are: Commercial geography and history, arithmetic, bookkeeping, calligraphy, drawing, and shorthand writing. Lessons in religion are given to every student, unless the parents request that they be dispensed with. Another important London school, having its own commercial department, is the Royal Polytechnic Institute, which prepares its students for the acquisition of a "chamber of commerce certificate," and likewise acts as a normal school for commercial teachers. Special mention should be given the secondary school established in 1866 by the "Corporation for Middle Class Education." This school is located in Cooper street, City Road. It has become one of the foremost public high schools of London under the skillful guidance of its principal, Dr. Wormell. According to the explicit order of its founders, the institution has the chief purpose of giving young people who intend to enter upon commercial pursuits a preparation suitable for their future vocation. It intends not only to give them suitable instruction, but also "train them in those habits and views which will secure for them the best and most lasting success in their future positions." The pro-

[1] Professor Fleischner, in stating the fact that few English merchants know foreign tongues, seems to attribute it to the system of training in vogue in England. But that is not the real reason. It is the result of "a natural cause," so to speak. English, of all the modern European tongues, is easiest to learn. It has scarcely any inflections and no difficult syntax. Compared with German and French it is almost grammarless. Speaking English is building a wall with unhewn stone, while speaking German means hewing each block to fit the place; the English-speaking person uses much mortar in form of prepositions to show the relation of words. Hence the acquisition of the English language in early youth does not give that linguistic training which children of other nations get, and which enables them to master foreign languages. Everyone whose mother tongue is difficult to learn and to use, on account of its wealth of forms of inflection and difficult syntactical rules will, of necessity, acquire a linguistic training in early youth which enables him to grasp other idioms with ease. The Germans learn foreign tongues quite readily. They even learn to speak Latin in secondary schools. More talented in languages even than the Germans are the Russians, whose language is rigid in forms and finely inflected. But the easy, unruly English is bound to become the language of trade all over the world, and moreover it will remain the language that brings forth the greatest orators. It is like a handy tool to a workman. A jackknife may be used for a variety of purposes, while a finely mounted and adjusted instrument may be useful for a few purposes only.

gramme of this school includes English and its literature, history and commercial geography, mathematics, calligraphy, bookkeeping, chemistry, drawing, French, vocal music, and the elements of natural science. German is an optional study. * * *

As has been stated before, the first step toward a systematic teaching of commercial branches was taken by the London Chamber of Commerce by proposing a model course which unfortunately proved inadequate. But this influential body intends to go further and establish, on a large scale, a commercial college of six grades, in case its new proposition finds general approbation, and it is confidently expected that this institution will find many imitators and lead to other establishments all over England. Already the consciousness of inadequate commercial training among the English merchants has led to changing purely classical secondary schools into commercial colleges. An example of this is the "City of London School." This institution, founded by the city authorities as a kind of classical high school, did not find the desired support among the people, and it was soon found desirable to add a technical course in which foreign languages, bookkeeping, political economy, and shorthand writing were prominent features. From the annual report of the principal, Mr. Pollard, it is seen that this technical course has constantly increased the number of students, while the classical course has decreased to small dimensions. The trustees and faculty of the school are contemplating a radical change by abandoning the classical and substituting a commercial department. Such facts as these indicate the drift of sentiment.

SWITZERLAND.

The third country in which commercial training has become an object of great solicitude is Switzerland. An animated discussion has been going on there for the purpose of elevating the commercial training of Swiss young men. During the proceedings of the convention, called for a revision of the Federal constitution, which held its sesssions from 1871 till 1874, it was pointed out by prominent writers and speakers that professional commercial education should be made a Federal concern. An article was inserted in the constitution, according to which the Federal Government was granted the right "to establish higher institutions of learning and to subsidize those already in existence, except the universities, which shall remain exclusively cantonal institutions." However, since the adoption of the constitution this right has not been exercised for the benefit of the mercantile calling, though a Federal polytechnicum has been established in Zurich. Yet no calling needs Federal aid more than the commercial, for it has been acknowledged in most civilized States that mere routine work and tradition of countinghouses does not suffice, but that the merchant needs a special technical education in order to meet the ever growing competition with other countries.

Whenever in Switzerland a school question comes up, several factors are to be considered—the Federal and Cantonal Governments, communal authorities, chartered corporations, and private enterprise. All these elements had been set in motion to aid commercial education, but without any noticeable effect. On December 8, 1888, at last the support of commercial schools was discussed in the Federal Parliament, and the discussion resulted in the adoption of a set of resolutions, the salient points of which may be quoted:

The Federal Council (the executive Federal authority) is requested to investigate the question whether Federal aid can be applied under the constitution for the

purpose of establishing a higher commercial college and a commercial museum—that is to say, whether the law of June 27, 1884, according to which industrial and professional schools may be subsidized, can be so interpreted as to include the establishment of a commercial school with Federal funds.

Meanwhile several private commercial schools had been opened, which were inadequate to meet the highest demands. The Federal Council, urged by numerous petitions of commercial clubs and schools, went further than it originally intended. It contemplated the establishment of a central Federal commercial school on a grand scale. When, however, the plan was submitted to judicial authority it was decided that a school with such narrow professional aims would not be in harmony with the intentions of the framers of the constitution, but that the establishment of a central Federal schoool for "Swiss law and science of government" might be within the constitutional limitations, since its purpose was general and benefited all classes of society. In such a school the merchants might find information on questions concerning them.

The alumni of the Federal polytechnicum petitioned the Government to establish in that institution a commercial department, intended for the highest education of merchants, for it was argued that every industry had a commercial aspect which deserves preparation, and commercial science and modern languages were especially mentioned as the branches for such a department. The Council, however, failed to act on the petition.

The plan of establishing a central institution of the highest grade for merchants in Switzerland is therefore held in abeyance for the present, and the attention of men interested in the subject is concentrated on the improvement of commercial schools subsidized by the Federal Government and of private institutions. The Federal Council, April 25, 1891, passed a resolution which regulates the relation of the State to commercial institutions, the four articles of which read as follows:

ARTICLE 1. To the institutions of learning which, according to the law of June 27, 1884, are entitled to Federal aid are added the commercial schools, and hence the regulations concerning other schools will be applicable to them also.

ARTICLE 2. The executive authority is hereby empowered to grant subsidies to commercial clubs for maintaining schools, and to grant scholarships to students for meritorious work and excellent results achieved in Swiss commercial schools, as well as to grant stipends to Swiss graduates of such schools for the purpose of attending foreign higher commercial institutions.

ARTICLE 3. Minute regulations for carrying out this order are to be published by the executive, similar to those in force for other callings.

ARTICLE 4. The sum of 60,000 francs ($12,000) is hereby appropriated for this purpose for the year 1891.

After this brief historical review, it may be stated that the development of commercial education in Switzerland took essentially the same course which it took in England. About forty years ago commercial departments were added to cantonal, city, or private high and industrial schools. The typical form in which these secondary schools appear is that of a uniform course, which, after three or four years, is bifurcated into technical and mercantile divisions. Side by side with these general secondary schools a few independent commercial schools are found. These have a two years' course.

Since the organization of purely commercial schools and departments of schools differs in the various Cantons (a peculiar feature of all educational institutions in Switzerland), it would seem proper to sketch a few schools which have become typical, i. e., those of Bern,

Basel, and Geneva. The commercial school of Bern is a department of the city high school. Although a city institution, it receives aid from the cantonal government. It is a classical high school, bifurcated in the higher grades. The course is uniform for all students from the tenth to the fifteenth year of age; after that the commercial department continues for two years. The uniform course contains French and English, so that the students come into the commercial course with a good linguistic training. In the latter course the studies are as follows: Physics, chemistry, knowledge of merchandise, drawing, calligraphy, gymnastics, science of trade, history, geography, countinghouse work and bookkeeping, mathematics, commercial arithmetic, German, and religion. The total number of hours of instruction per week is thirty-seven in the first, thirty-six in the second year. The entire institution is governed by a board of trustees of nine members, of whom five are appointed by the Canton (or State), four by the city. The tuition fee is 60 francs ($12) per annum. For the second year a number of scholarships are granted.

In Basel also the commercial school is not an independent institution, but a department of the city high school. Upon a common basis rest the two sections, the technical and the commercial. The former has a course of three and a half years, the commercial one of three years. Both departments are under the same authority and supervision. Tuition is gratuitous, as it is in all city schools of Basel. The course of the commercial department contains the same branches found in the Bern school. The number of hours per week is thirty-one in the first, thirty-two in the second, and thirty-three in the third year.

Until 1887 commercial training in Geneva was given in the commercial department of the cantonal high school, but in that year an independent high school for commercial branches was established by the city, the former institution was abandoned, and the high school reserved for university preparation. The new school requires the candidate for admission to be 15 years of age. He must have passed through five grades of a college or the second grade of a professional school. For students who can not comply with these requirements a preparatory department of two years is provided. The tuition fee is 100 francs ($20) for Swiss students, but double that amount for foreigners. Nonresident students who come to study only a few branches pay 5 and 10 francs ($1 to $2) per week. The direction and supervision of this institution lie in the hands of an administrative board of twelve members, four of whom are appointed by the Canton (or State) and eight by the municipal council. The expenses for 1893 amounted to 32,800 francs ($6,456), of which the Canton of Geneva paid 6,725 francs, the city 20,155 francs; 6,000 francs were paid by the students. The course includes the following branches: French, German, English, Italian, Spanish (the last three languages are optional studies), calligraphy, drawing, bookkeeping, mathematics, geography, history, physics, chemistry, civil law, insurance and tariffs, knowledge of merchandise. At stated intervals excursions are made to mercantile establishments, after which the students report in class of what they have seen. This leads to discussions on questions of the day. The number of hours a week is thirty-three in the first and second, thirty-four in the third year. The language lessons per week are as follows: French, three; German, four; English, four; Italian, four; Spanish, three. The most prominent branch

is countinghouse practice, for which eight hours a week throughout the three years are reserved.

Similar independent schools for commercial training are found in Neuenburg, Solothurn, Winterthur, and Chaux-de-Fonds. In addition to these there are in Switzerland eleven commercial departments connected with classical and technical high schools. Commercial instruction of a lower order is offered also in "continuation schools" for elementary pupils, and commercial clubs arrange evening courses for apprentices here and there.

As a model of a commercial "continuation" school may be mentioned the school in St. Gall, where French is taught three hours a week throughout a four years' course; English, Italian, German, penmanship, commercial arithmetic, discount, and civics are the other branches. In summer the school is held from 6 to 8 a. m., in the winter from 7 to 9 a. m., and from 6 to 9 p. m. in both summer and winter. All utensils and stationery used in the school are furnished by the teachers, for which in summer 1 franc, in winter 2 francs, are paid by the student.

The educational activity of commercial clubs is chiefly directed toward the advancement of their own members in certain branches. Several such clubs recently formed a national union, which now consists of eighteen sections, of which the Swiss Mercantile Society of London, England, is one. Among these eighteen sections, that of Zurich is the most prominent. It maintains a commercial school of its own; it received in 1894 a federal subsidy of 5,000 francs ($1,000). The section club in Basel maintains courses in bookkeeping, shorthand, and commercial law, as well as several courses in languages.

The bifurcation of the cantonal high schools in technical and commercial departments, spoken of before, has not been attended by felicitous results. It has been found that the commercial instruction based on a common course of preparation with that of other high school departments is lacking certain elements essential for success. This is the reason why the independent commercial schools are increasing in number and gaining in popularity.

In 1893 the total Federal subsidy for commercial education in Switzerland amounted to 87,490 francs ($17,498), of which 46,800 francs were spent for commercial schools; 38,640 francs were paid to commercial clubs, and 2,050 francs for scholarships, of which one is used in Venice and two in Munich. In conclusion, it may be stated that the educational authorities of the Canton (or State) of Zurich in 1893 petitioned the Federal Government for a subsidy for a girls' commercial school. This petition was not granted, though, because the Federal executive interpreted the law of 1884 as giving no authority to extend commercial training to girls. Similar petitions have been sent to the Federal Government from Berne and Biel. There is, however, little doubt that these petitions will soon be granted, inasmuch as the commercial department of the technical school at Winterthur, which receives a Federal subsidy, admits girls. The local authorities of that city are highly in favor of the extension of the subsidy to schools for both sexes.

Thus we see that the people of Switzerland are desirous of keeping up with other nations in the commercial training of young men. From the willingness with which Federal, cantonal, and communal authorities contribute to that end, the future may be judged. For a long time Switzerland had not an institution for the special training of merchants, though they are the basis of wealth, aiding and directing

industry; but in late years great zeal is shown in raising the commercial branch of the nation's activity to a higher level of culture. The fact that the nations surrounding the mountain Republic are eagerly increasing their connections with foreign and transmarine markets, and for that purpose prepare suitable agents, may have led the Swiss people to imitate. They certainly had a splendid example in Austria, as we have seen in a foregoing chapter.

FRANCE.

In the year 1820 two French merchants, Messrs. Brodard and Legret, who were anxious about the future of French commerce, conceived the plan of establishing a school in France in which young men should receive instruction preparing them to be merchants. Relying on their own means, the yopened such a school in Rue de Grenelle, calling the institution "École spéciale de commerce."

The fitness of such an undertaking would at present be self-evident at a time when the necessity for commercial training is recognized everywhere, but at the time when Messrs. Brodard and Legret opened their school the enterprise was considered a very bold one. Few thought of the necessity or even of the possibility of such a technical instruction for which hitherto practical work in the countinghouse and store magazines had fully sufficed. Few believed that the commercial sciences as such could be made subjects of scholastic instruction, owing to the great number of special branches of which these sciences are composed. The establishment of such an institution, for which there was no model in existence in France, met with the greatest obstacles. An attempt had to be made to combine the various commercial branches of knowledge into one science, to find or to prepare suitable teachers for that purpose. Other circumstances added to the difficulty. Frenchmen seemed to have no decided commercial sense or interest in commerce, although it was then flourishing. France, furthermore, was, after the Napoleonic wars, in a condition which prevented a far-sighted policy with regard to commerce and industry.

All these things combined to prevent young men from attending the school in Rue de Grenelle. They wished to be admitted to the bar, become physicians and authors rather than merchants. Entrance into the mercantile profession seemed a degradation for which no especial scholastic preparation was required. Hence the new school could not expect a flourishing growth. The trustees were well-experienced men, who attempted to frame a study plan suitable for the requirement of commerce. Men like Casimir-Périer, J. B. Say, Ch. Dupuy, J. Lafitte, and others framed a plan for this new school, whose course was one of three years. At first some students entered the institution, partly resident Parisians, partly from other parts of France, but after ten years of wrestling with new problems the institution was closed. Several times it had changed directors.

In 1830 Adolph Blanqui undertook to revive the school. He first changed the name of the institution to "École supérieure de commerce," which name it has retained to this day. Blanqui may justly be called the organizer of commercial education in France, for to him are due its principles. For twenty-five years he stood at the head of this school, whose reputation spread all over Europe,[1] but the num-

[1] It is interesting to learn that in Austria this French school has been taken as a model; for instance, in the establishment of the Commercial Academy in Prague, 1856.

ber of its students remained small. After Blanqui's death the institution met many kinds of obstacles, until, in 1869, the Paris Chamber of Commerce took possession of it. Meanwhile several other schools were established in France, mostly in imitation of Blanqui's institution.

The commercial schools of France may be divided into two groups. The first comprises seven higher institutions, of which two are in Paris, five in the provinces. The second group contains four secondary schools, of which three are situated in Paris. Beside these institutions there exist numerous schools of an elementary character for adults of both sexes. Hence there are really only eleven distinctly commercial schools in France. The Superior School of Commerce, the School of Commerce, and the School of Higher Commercial Studies are all under the direction of the Chamber of Commerce of Paris, which undertook the management of the first in 1869, the second in 1872, and the third in 1882. The commercial schools in Lyons, Marseilles, and Havre, as well as the Commercial Institute in Paris, are maintained by private corporations. The school in Rouen is connected with the school of science and letters of that city; the school in Bordeaux is connected with an industrial school, while the school at Rheims is under the direct supervision of the minister of public instruction. This city has, besides, a school of commercial practice under private management. Most commercial schools in France are managed by a board of trustees called comité, usually chosen from among the prominent merchants of the city in which they are situated. In Paris the chamber of commerce elects the trustees from among its members. In the board of trustees of the school of Marseilles two teachers act as expert counselors, while the higher school of commerce in Paris has a supplementary council of 25 members, the French minister of commerce being the chairman.

The State subsidies paid for commercial education are quite large, as will be seen from the following statements: A ministerial decree of February 1, 1849, granted sixteen scholarships of 500 francs ($100) each. This sum was afterwards greatly increased, and taken from the funds at the disposal of the minister of commerce for the promotion of commerce and industry. In the year 1875, for the first time, a definite amount (equivalent to $6,000), was appropriated for that purpose, and this amount was increased (to $8,000) in 1883. The State budget of commerce in 1884 contained $5,000 for the improvement of a building occupied by commercial schools. This appropriation was increased to $8,400 in 1886. Annual appropriations were also made for traveling expenses paid to graduates of higher schools of commerce. In 1886 $3,600 was used for that purpose. This action of the House of Deputies found general approval, since the importance of traveling was recognized for these students; partly, also, because it was shown that other countries had set the example in this policy. A special set of regulations was adopted for the manner of granting these stipends. The minister of commerce is the final judge in the matter.

The courses of study in most French commercial schools are arranged for three years, that of the school in Lyons for four years, while in Bordeaux and Havre only a two years' attendance is required. Foreign students are required to pass through a preparatory department, in which they are expected to familiarize themselves with the French language. The age at which students are admitted is 15 years; schools which have a preparatory department admit to that at 14 years.

The following branches are generally found in the French commercial schools: French, algebra, arithmetic, geometry, bookkeeping,

commercial law, physics, chemistry, history, commercial geography, drawing, shorthand writing, and two foreign languages. These branches are taught in thirty-one weekly hours. The number of professors varies between 9 (in Havre) and 32 (in Paris). The teachers' salaries are arranged according to the number of lessons they give per week and the importance of their subjects. A peculiar feature of this is that the professor of law is paid six times the amount which the professor of bookkeeping receives.

In all French commercial schools weekly excursions are arranged to factories and large mercantile establishments, museums, and exhibitions. Since it is impossible to take a large number of students to one place, small groups are conducted by their teachers to various points on the same day. In France the numerous museums, art collections, monuments, and exhibitions are much more frequently utilized as agencies of education than in other countries. Elementary classes are taken by their teachers, on days when school is not in session, to museums and collections, to monuments and statues of noted men, where appropriate instruction is given. It is noteworthy, also, that the French commercial institutions of learning have many foreign students. In the superior school at Paris one-third of all the students are foreigners; the school at Marseilles has about 30, that of Havre about 50, foreign students. Diplomas are awarded to successful candidates who pass the final examination; in some of the institutions silver and gold medals are given for meritorious work. The diplomas of the Superior Commercial School, and those of the School for Higher Commercial Studies are signed by the minister of commerce.

A few details about the "Ecole Supérieure de Commerce" in Paris may conclude the review of French commercial education. This institution was founded in 1820 and transferred to the Chamber of Commerce in 1869. It is now situated at No. 102 Rue Amelot. The prospectus for 1895 says: The course is one of three years, but well-prepared students have the right to enter the second grade at once. The age of admission is 15 years. The students of the third year are guided by their professors to factories of Paris and vicinity, and report in writing what they have observed. The same students undertake a journey annually into the northern part of France or into Belgium in order to study the coal mines, means of transportation, and other things interesting to merchants. The students' reports of this excursion are submitted for competition; the best composition is awarded a traveling scholarship of 1,000 francs ($200). Examinations are held every three months, reports of which are sent to the parents. At the close of the course, medals are distributed which are provided by the Chamber of Commerce, the Society for the Promotion of Commercial Geography, and the Society of Alumni. The students who pass the final examination have the right to limit their service in the army to only one year, and the aid of the school is offered to them to secure acceptable positions in the commercial world. The State grants 12 scholarships to worthy students. Like most French schools of this kind, the superior commercial school has dormitories connected with the institution; in this school tuition, room, and board cost $400 a year, payable in three installments.

BELGIUM.

At the head of the commercial institutions of learning in Belgium stands the "Institut de Commerce" at Antwerp. The establishment

of this noted institution is due to the former minister of state, M. A. Dechamps, who submitted the plan for such a school to the city council of Antwerp and to the provincial government in 1847. At the same time a merchant, H. Mathysseus, published a pamphlet: "Propositions for the establishment of a Belgian university for commerce and industry." However, public opinion and the existing universities in Belgium opposed this plan, claiming that the science of commerce was not equal in importance to the university studies; hence the minister's plan was finally adopted and the institute of commerce opened with 51 students on October 22, 1853. The city council undertook its maintenance and management, and the State guaranteed to pay one-third of the expenses. This school has educated over 4,000 students.

The institute of commerce has an organization similar to the universities of Belgium, but unlike other schools of that country, it has no dormitories; the students live in private houses. The course is one of two years. An examination is required for admission; exempt from this examination are graduates of the Belgian Athenæum, or any institution of Belgium ranking with this high school. All candidates for admission must prove that they have sufficient familiarity with French, English, and German. For the purpose of obtaining well-prepared students, a preparatory department has been added, in which only those branches are taught which fit the student for admission to the institute. The lowest age at which admission is allowed is 16½ years. The branches in which the candidates for admission are examined are French, English, German, bookkeeping, geography, mathematics, chemistry, physics, history, commercial law, and political economy.

The most important place in the course for the first year of the institute is the practical work in the model countinghouse. Here the more theoretical branches have their focus. Here is utilized that which is taught in the scholastic branches. In the countinghouse the mercantile practice is imitated in its smallest details and widest bearings. Regular business transactions take place, and every student in turn is made to participate in all kinds of transactions and occupations. Business correspondence is first carried on in French, then in the other languages taught. Every month stock is taken and a balance sheet furnished. During the first year business is done only with European countries; in the second year the business is extended to transmarine countries. All the bearings of trade are taught, so that the students gain a clear view of commerce and its ramifications all over the world.

The lessons are distributed in hours per week, as follows:

Lessons.	First year.	Second year.
Countinghouse practice	12	12
Commercial arithmetic	3	3
Chemistry and knowledge of merchandise	2	2
Political economy	1	2
History of commerce	2	.....
Geography of commerce	1	3
Commercial and maritime law	1	1
Elements of international law	1	.....
Tariff legislation	1	.....
Knowledge of shipbuilding	1	.....
Dutch language	2	2
German language	3	3
English language	3	3
Spanish or Italian	3	3
Total	36	34

Besides these regular lessons and lectures, occasional talks are given by prominent merchants, manufacturers, engineers, and other experts on subjects closely connected with mercantile pursuits. On days when the school is not in session, visits to commercial and industrial establishments are made by the classes, conducted by their teachers; but, unlike the commercial schools in Paris, this institution does not arrange for discussions on the part of the students. Lately it has been urgently advocated to add a third year to the course. This third year should be devoted chiefly to the legal aspect of commerce, and should serve as a special preparation for consuls, since in Belgium the consular service is chiefly recruited from among the merchants.

Every regular student is examined at the close of the first and of the second year. Having passed the final examination, the student receives a diploma entitling him to the degree of "Licencié dans les études de commerce." The examining board consists of seven members appointed by the minister of commerce from among the leading merchants and the professors of the institution. The Government is represented at this examination by the inspector-general of commerce. Graduates receive, upon application, traveling stipends, which are paid by the State. The legislature or parliament appropriates 45,000 francs, or $9,000, annually for that purpose, and the stipends vary between $1,000 and $1,200 per annum, according to the country to which the students go. They must agree to stay three years in that country. During recent years the graduates receiving stipends have sojourned in transmarine countries, Argentina, Brazil, China, Japan, India, Australia, and New Zealand. They have established Belgian agencies for commercial firms in these countries, and have opened new channels of trade for Belgian products of industry. Some of these graduates have been appointed Belgian consuls in foreign countries.

Despite the undeniable advantages derived from the Antwerp commercial institution, it can not be said that it has found general approval in public opinion. In Belgium a certain prejudice, entertained even by educated people, against the commercial calling seems to react against the State's subsidy for scholastic preparation of merchants. The idea is still prevalent that practice alone can serve as proper preparation for a merchant, and that all theoretic instruction is superfluous. It is not considered that theoretic instruction is the basis of continuous self-culture, and that in this century of science, discovery, and, invention neither the merchant nor one in any other profession or calling can be properly prepared without thorough scientific work; and furthermore, that without familiarity with foreign languages no merchant can enter into competition with the merchants of other countries in the world's markets. Other countries have found that the money spent in educating and training commercial students is by no means squandered, but yields large interest.

For sixteen years the institute in Antwerp struggled for existence, and in 1869 it had only 67 students, of whom 35 were foreigners. Since then the attendance has increased, partly owing to a reduction in the tuition fees, partly owing to the stipends paid to graduates by the State. Belgium, with a population of over five and a half millions, among whom the industrial and commercial people are very numerous, would seem to need more than 80 graduates per annum from the only higher commercial institution the country possesses. The Belgian "Atheneums" or high schools give also commercial instruction to a

limited degree, but their graduates rarely devote themselves to commercial pursuits.

In conclusion, a society may be mentioned which owes its origin to the Antwerp higher commercial institution. It is the "Société des anciens élèves de l'Institut de commerce" (society of alumni), which has the purpose to acquaint the commercial world with all the new ideas that intimately concern Belgian commerce. The members are earnest supporters of their alma mater. The society arranges public lectures on political economy and participates in international commercial congresses representing Belgium. It grants scholarships to students of the institute and publishes a periodical in the interest of Belgian commerce.

ITALY.

The beginnings of commercial training in Italy do not date back many years. The law which organized public instruction was passed in 1859, and in this law an article referring to commercial education determines that those who intend to devote themselves to commercial "as well as any other technical" pursuits, should attend the "Instituti tecnici," so called in contradistinction to classical high schools. These institutions have a section for agriculture and technology, and another for commercial studies (sezione commercio e ragioneria). Graduation from these institutions enables the students not only to gain good positions in mercantile houses, but entitles them also to certain State offices.

The commercial "sections" or departments in technical high schools offer instruction in bookkeeping, correspondence, knowledge of merchandise, banking and commercial law, and French, while German is an optional study. There are about sixty of such institutions in Italy. They are subsidized by the State, but, according to the verdict of the mercantile world, they are not sufficient to meet the ever growing demands of the time. A higher institution was needed such as nearly every profession and calling had. The universities prepared for the learned professions; the engineering school at Milan prepared thorough technologists and engineers; the school of shipbuilding at Turin thoroughly prepared shipbuilders; artists had several schools, and the school of design at Genoa prepared young men for industrial arts. Only the merchants had to rely on secondary schools. At last, in 1867, a beginning was made to supply the want.

It was in Venice, the city which had been famous for many centuries for her extensive commerce and successful industry, where higher instruction for commercial men was begun. In July, 1867, the directors of the "Stabilimento tecnico" petitioned the city council for an appropriation with which to establish a higher commercial school. The city council, and other bodies addressed for the same purpose, declared their willingness to aid the institution, since the need of better preparation for merchants was acutely felt. After an executive committee had been appointed, the Royal Government was also asked for a subsidy. This Government was willing to contribute annually to the maintenance of such a school if the founders would consent to devote it to three purposes: (1) To offer higher instruction for mercantile pursuits; (2) to give instruction in law for the professional preparation of consuls, and (3) to act as a normal school for teachers of commercial schools, and for that purpose lay especial stress upon the teaching of foreign languages. The Government

provided further that the board of trustees of the institution should have one member proposed by the Government.

In 1871 the institution was opened under the most favorable auspices. The number of students was considerable, and it has since steadily grown. The school is called "Regia Scuola Superiore di Commercio" (Royal Higher School of Commerce), and it has five yearly grades. At first a preparatory department was maintained, but that has been found unnecessary and has been abandoned. At present (in 1896) the institution is conducted by Senator Francisco Ferrara. The province of Venice pays a sum equivalent to $8,000, the city of Venice $2,000, the board of trade $2,000, and the Italian Government $6,000 per year for its maintenance.

It has its seat in the palace Foscari, which has been given over to this purpose by the city council. The school takes regular and irregular students. The latter prepare themselves for particular branches, such as the consular service. Candidates are required to submit to an examination for admission, except those who graduated from technical lyceums (modern high schools). This examination includes the Italian language and literature, geography, history, arithmetic, algebra, physics, natural history, French, and shorthand writing. It is possible for a candidate to enter the second year's course if he is in possession of the required knowledge and has passed his seventeenth year of life. The tuition fee amounts to 50 florins (about $25) per annum. Extraordinary students pay 6 florins ($3) per annum for each branch of study they choose. The Royal Government, as well as the other agencies which support the school, grant scholarships; the same is done by the boards or chambers of commerce in other cities when they send students to this school in Venice.

In accordance with the expressed desire of the Royal Government, the school consists of three departments: (1) The general department, which prepares students for commercial pursuits in a three years' course; (2) the consular department, which has a course of five years, and (3) the commercial normal school, which prepares teachers for commercial schools in a course of four years. In this latter-named department the chief studies in the first year are political economy and statistics; those of the second year are the common commercial branches; those of the third year are knowledge of merchandise and chemistry, and those of the fourth year are foreign languages. With this normal school department a practice school is combined, in which the students learn how to teach the commercial branches. The studies of the other two departments are, aside from the purely commercial studies, commercial history and political history, English, French, Italian, German, and one oriental language, international law, criminal law, constitutional law, court procedure, commercial and maritime law, and in the consular department certain additional branches are taught which are prescribed by the Government and refer to consular practice.

Graduates receive diplomas, and those of the normal school have the right to teach the commercial branches in any school in Italy. The discipline is very strict; punishment begins with simple censure and may end in expulsion. A board governs the school. To this board representatives are sent by the Venice Board of Trade, the city council, the province of Venice, and the Italian Government. The director or principal is assisted by two secretaries. Subsidies from State, province, city, and the board of trade, together with the tuition fees, suffice to defray the expenditures. The school has no fund.

The professors are paid between $600 and $1,500, and their appointment, dismissal, or promotion has been reserved to the Government. At date of last report (1894) the institution has 18 professors and 2 assistants.

The school has the rank of a university, and graduation from it entitles the student to the same rights granted to graduates of State universities. This commercial State institution has rendered very valuable service to Italian commerce. It possesses an extensive museum of merchandise and a large library, for the maintenance and extension of which 1,000 florins ($500) are used annually. Besides these it has the entire equipment of a first-class commercial school. However, the Italian merchants persist in engaging German clerks in preference to Italian. Still, the school in Venice has found two imitators—one in Genoa and one at Bari. The future of these two institutions seems to have been secured, since, as the reports say, their instruction is purely technical and of a practical character. This is a feature which is generally appreciated by merchants who are not given to theoretical consideration of any question. Anything that is not directly aiding the technical preparation of merchants is excluded from the course of study of these schools.

In 1875 a committee was formed by the board of trustees of the school in Venice, whose business it is to help the graduates of the school to secure lucrative positions. At the head of this committee stands the president of the chamber of commerce. The results of the committee's labors are very satisfactory. Not a single graduate of the school has remained unemployed.

The modern Kingdom of Italy has done much in the field of education and instruction. It has called into existence establishments which have become famous. In regard to commercial education it has not remained behind other countries. In Turin a commercial school of three grades was founded in 1856. Its founder was a graduate of the Paris "École supérieure de commerce," Jean Joseph Garnier. Other commercial schools in Italy are of later date. There is one in Florence, established in 1877; one in Genoa, founded in 1883. Other large cities in Italy—for instance, Rome and Naples, in which a certain industrial feature is prominent—have commercial schools supported by private persons, communities, boards of trade, or commercial societies. The school founded and maintained by the society of "Archimedes" in Turin occupies a peculiar position. It is now (1895) 14 years old, has 60 classes and 64 teachers. In 1894–95 it had 1,675 students, male and female, and 1,300 graduated after one year's study. The course of study includes Italian language, arithmetic, bookkeeping, penmanship, French language, drawing, electro-technology, shorthand writing. The girls learn, besides most of the foregoing branches, sewing and embroidery.

The right to attend a common commercial course is obtained by passing an examination before a government commissioner, but if the student wishes to study languages and geography he is obliged to pass an examination for admission to a university. In other words, these two branches, belonging to the university course, are classed among the branches of higher education. For ordinary commercial branches a diploma of graduation from a lyceum is sufficient.

The foregoing statements concerning the commercial training in France, Belgium, and Italy plainly show that the authorities lay particular emphasis upon the technical training in commercial schools, but they do not neglect the educational side which tends to general

culture, moral and intellectual. It may be desirable to touch upon this point with reference to professional schools of all kinds.

The development of the entire educational system, which has increased at a rapid rate and in a most satisfactory manner in recent decades, has resulted in a division of labor, owing to the ever-increasing amount of knowledge and skill to be gained, and this has caused the establishment of many kinds of professional and technical schools which lay more stress upon special and less stress upon general education. These schools, obedient to the urgent social demands of the time, have become a very important factor of the educational agencies of the modern nations. They are intended to give a special training which formerly was rarely offered in schools, and it is expected to be done in the shortest possible period, with the least expenditure of money, and upon a basis of a brief preparatory study.

There is little doubt that these institutions meet the requirements in regard to special or technical training; for private persons, as well as municipal and State authorities, continue establishing schools of this kind, and their graduates are generally found to meet the requirements of practical life. But quite another question is whether these schools are truly educating their students.

It is a postulate of pedagogy that every kind of instruction—hence, special, technical, or professional instruction not excepted—has an educational influence. Every school must have a twofold object, (1) to give technical knowledge and train the intellect, and (2) to ennoble the soul and establish character. In this latter sense all instruction may be educative if it be good and in accordance with the proper spirit, but it is nevertheless essential in special schools to keep in mind the distinction between mere instruction and educative instruction.

The demand for education or ethical training, and the endeavor to give it much room without infringing upon the purely technical training, have become more important since the changed social conditions have laid upon the schools duties which the family and home used to perform—that is to say, ideas of morality and religion, good manners, and public spirit are expected to be inculcated by school education. Under the pressure of business and in the haste with which everything is done, and must be done, the home has lost its influence upon the young generation, and the school is asked to supply that ethical training which will make good men and women of our boys and girls. Hence every school must make it an object of its work to offer both teaching the intellect and training the will.

It is plain that the commercial schools must not stand aside in this; that they, like all other educational institutions, must aim at an education which is following certain higher considerations than how best to enable their students to earn their living. They should aim at ethical perfection of their pupils, at ennobling and training of their characters, at the education of a generation filled with public spirit and patriotism, a sense of true humanity, justice, and regard for the law, faithfulness to principles and constancy in action. In fact these schools, certainly no less than other schools, should aim at all those virtues which make good men first before they think of becoming good merchants.

There are a great number of educational momenta to be considered, not to speak of what these schools as such may demand of their students. Obedience to orders, attention, courtesy, truthfulness, reg-

ularity—virtues which are conditions of every healthy school organization.

At the first glance it would seem as though such ideas could only be taught in connection with religion and history, but the best occasions after all are those which the teaching of the mother tongue offers. It is therefore very essential for commercial students to have a "reader" (text-book for reading), which contains suitable matter for ethical instruction. It has often been said that the reader in the class room is the center of instruction. This book is not superfluous for commercial schools. It may offer numerous occasions for ethical instruction, which without such a book might never be given. By means of analogy the interest of the students may be awakened in events outside of home and school. The various institutions of charity, which, following the humane spirit of the times, are established by State and community, may arouse the students to an early consideration of public affairs, so that the blighting egotism, so easily engendered by the study of commercial branches, may be counteracted by influences which will aid in making good, public-spirited citizens of the young. The reader may give the starting point for lessons which bookkeeping, arithmetic, and similar technical branches can not give. Yet even the purely technical branches should be pressed into service of the one supreme object of the school: To make good men and good citizens.

CHAPTER VII.

THE TEACHING OF CIVICS IN SWITZERLAND, FRANCE, AND ENGLAND.

Attempts made in this country in behalf of teaching civics (the science of the State, its constitution and functions) make it desirable to see what is done in this direction in other countries. Naturally the reviewer's glance turns first to countries of a similar form of government, to wit, republican government, which we find in France and Switzerland. There is not another country in the world that has a government more popular than Switzerland has, and it is gratifying to note that in that Republic civics is a regular branch in the advanced elementary schools (the so-called Fortbildungs-Schulen). In the following pages a translation is presented of the little text-book used for the purpose of teaching civics (Staatskunde) in Switzerland. Its author is Dr. Albert Affolter, of Solothurn (Souleure).

THE TEACHING OF CIVICS IN SWITZERLAND.

I.—THE STATE IN GENERAL.

A.—The Commonwealth.

1. *The Commonwealth.*—Man has the desire not to live alone, but to join other men and associate with them. The simplest and most original association of human beings is found in the family. Several families unite together to form a tribe, a community, a province, a nation. The reason why human beings unite to form society lies in the feeling that only by means of a common, firmly established order of intercourse prosperity and protection against hostile attacks can be secured. Society thus formed, if settled, is called a community.

The purposes of the community are preservation of peace and order in the interior and protection against common foes, as well as promotion of the common weal. These purposes give the community the qualities of a public alliance, or union, or society. This public community is distinguished by the purposes mentioned from all other unions which may be formed for economic, religious, social, and other purposes (business companies, cooperative societies, clubs, etc.).

2. *The State.*—The highest community is the State. It is an association of human beings formed by means of firmly established organization, limited to a clearly defined country or territory. The human beings belonging to this association called State are the people; the established order or organization is the legal order, and the land occupied by these people is the territory of the State. Hence the State consists of land or territory, legal order, and the people. The order prevailing is the result of organization, and the State therefore appears as a being endowed with life, the state system, which has a will of its own, the will of the

State, and active organs, the officers of the State. It is, so to speak, a person having tasks to perform and entering into communication with other States.

3. *Communities.*—Even within the confines of the State there are public associations—the communities. They, too, have the object to maintain order and promote public affairs. But the community does not have the object to protect its members against attack from without; the State alone does that. Like the State, the community has a clearly defined territory, a population, and a firmly established order. According to their objects the communities are of different kinds. There are civil, church, and school communities.

B.—Kinds of States—Attributes.

4. *Sovereignty.*—The term sovereignty is used with respect to States as well as persons.

The sovereignty of the State means its independence of other States and its self-government in arranging its own affairs. A State, therefore, is sovereign when it stands in no relation of dependence and has complete freedom of action in its interior. There is also a limited sovereignty. It is even possible to speak of the sovereignty of a community, since the communities have for certain purposes full liberty of action, to regulate their own affairs, for instance.

The sovereignty of persons means that they have the highest power in the State. Thus we designate rulers (emperors, kings, princes, etc.) with the term sovereigns. Where the people themselves represent the highest power, we speak of the people's sovereignty.

5. *Republic and monarchy.*—According to the manner in which the State is organized we speak of its being a republic or a monarchy.

In the republic the highest power remains with the people. It is the sovereign. Its will determines every public question. To direct the State, only such men are called in whom the people have confidence, and they stay in office only so long as they please the people. At the head of the State, therefore, there are men who are elected, that is, chosen, either by the people or its representatives. The republic rests on the people. If this will is expressed directly, so that the people decide all important questions and perform the chief elections (voting and electing orally in town council or by means of the ballot box), the republic is a purely democratic one. If, however, the people designate by means of elections certain representatives who are to perform the business of the State in the people's name, the republic is called a representative democracy.

A monarchy is a State in which the sovereignty is not in the people, but in a certain person, the monarch. He comes into power by inheritance belonging to the ruling family or dynasty (hereditary prince or monarch). In former times the monarch could also be elected in that he was an electoral prince or monarch. The sovereignty of a monarch has been circumscribed and limited in most cases by the will of the people's representatives (parliament), to the end that he can not institute an important measure without the consent of parliament. States in which the people's representatives in parliament assembled take part in directing public affairs are said to be constitutional States.

6. *The State of law.*—The association called State is made possible only by firmly established legal order. Every officer of the State is obliged to conform with this legal order, and no one is allowed to violate it. It must be possible to bring to the notice of an independent judicial court any arbitrary harmful action and all violations of the law on the part of public officers. A State in which the law is thus respected and the necessary institutions for its application are provided, so that no violation of law, even though it be that of the highest officer, remains unpunished, we call a perfect State of law. It is that State in which no one stands above the law and dares to defy it.

7. *Federation of States and union.*—Small States frequently observe the necessity to join forces, in order the better to withstand attacks from without. This attachment of several States may be a loose or close one. A federation of States is called a group of States joined together so that each State loses some of its sovereignty toward the outside world, but not in the interior. In this case each State is left free in the management of its own affairs so long as they do not conflict with the common purposes of the federation. A union, on the other hand, is a firmly riveted combination of States, in which the latter lose a part of their sovereignty toward the exterior as well as the interior. The authority they lose is bestowed upon the central or union government, which has permanent offices. A union of States bears in itself the possibility of developing into a single State.

The Swiss federation was loosely combined from its origin until the year 1798, and then again from 1803 until 1848. Between 1798 and 1803 it was a union, and since 1848 it has again assumed the character of a union.

C.—Duties of the State.

8. *In general.*—The State has duties to perform in the interior and in relation with other States. It tries to promote peaceful intercourse with other States, and if the necessity should arise, to repulse unjustified attacks with the aid of the army. In the interior it maintains order, cares for the common weal, and protects the liberty and rights of each citizen. In the performance of these duties the State, or rather its officers, must be very diligently active. Those who stand at the head of the State promote the relations with other States and represent it toward the outside world. In the interior the officers see to it that the functions of the State are performed without hindrance. The officers and their work are called collectively the government. Since the rules for the interior order and the rights of the citizens are not at all times the same, but are ever requiring improvement, it becomes necessary to change them from time to time. The activity of the organ that is intrusted with such changes is called legislation or lawgiving. The officers designated to perform such work are the legislators. In cases in which the law is violated, certain officers of the State see to it that the law is vindicated. This action is called the judicial duty of the State, and the officers charged with it the judiciary of the State. The State also sees to it that it has means at hand to secure and protect the possessions of the State, to promote general welfare, to improve the army and other means of defense; in short, to carry into effect all those measures which are for the general benefit and are provided for by legislation. This extensive activity as a whole is called the administration, and the officers who are charged with its performance are the organs of administration, often called the authorities. Hence the work of the State is divided into three great divisions: (1) Legislative branch; (2) administrative branch, and (3) judiciary branch. The first makes the laws, the second executes them, and the third defines and, if necessary, vindicates them.

9. *Separation of powers.*—It is generally required in the modern State nowadays that the officers of the different branches should be separated—that is to say, that those active as lawgivers should not at the same time be executors or vindicators of the law, but that there be separate officers for each branch. This separation is carried out in nearly all constitutional States of the civilized world.

10. *Self-government.*—The State's officers do not perform all the work necessary to be done for the State, but they leave much of it to be done by parts of the State and by communities. In a federation, the separate States make, execute, and vindicate laws for their own territories, and the communities again as parts of the State do the same in affairs concerning themselves only. This free use of the right to act for the common weal given to communities is called self or local government, also local administration.

D.—Territory and Population of a State.

11. *Territory.*—The territory of a State is the extent of land within its bounds. All persons and possessions occupying the territory are subject to the law of the State.

12. *Population.*—The population of a State is distinguished as citizens, inhabitants, or residents. Citizens are those who enjoy the civil rights of a State; collectively, they form a people or a nation. Civil rights embrace certain privileges, as the right of suffrage and eligibility to public office, which are denied to resident foreigners. A citizen living in a foreign country enjoys the protection of the State to which he belongs; this protection is guaranteed by means of ambassadors and consuls. Inhabitants, are those who reside permanently in the State; the term includes citizens and resident foreigners. Besides inhabitants, the term residents includes all sojourners (travelers, tourists, etc.). The law of a State applies to any person during his presence within the confines of its jurisdiction.

E.—Legal Order of the State.

13. *In general.*—Law is the established order of a State. All organizations of a State, its division, official power, and reciprocal relation of public officers, as well as the judicial relations of population, are fixed by law. Law makes a State of population and the territory which it occupies; the whole being of a State depends upon it. The term law defines not only order of a State, but the rights of the individual which pertain to him because of legal order.

14. *Division of the legal order.*—The rules of order are contained in certain laws; sometimes custom determines action in cases for which there is no prescribed law. Laws and judicial customs are the sources of jurisprudence.

The chief of all laws is the constitution, containing the principles of a State; it is the fundamental law of a country, and treats of the organization and division of a State and the relation of public officers to one another and the people. A series of minor laws refer to judiciary details relative to the administration of justice and the rights and duties of individuals. The constitution and the laws of administration are known as public law. We distinguish others:—Laws of litigation apply to detailed proceedings in the administration of justice; penal laws define what actions and omissions deserve punishment and how severe the punishment may be; laws of private and civil rights apply to the private relations of citizens, as the family, possessions, business, contracts, claims and debts, inheritance, etc. We may define civics as the study of the law and working of a State.

II.—SWITZERLAND IN GENERAL.

A.—History of the State System of Switzerland.

15. *The old confederation.*—The league of the three districts, Uri, Schwyz, and Unterwalden, in the thirteenth century was the germ of Switzerland. A Latin contract signed by these districts in 1291 is still extant. The league was formed for defense against attacks from without, and particularly against the rulers of Hapsburg-Austria. After the glorious battle of Morgarten, 1315, it was renewed at Brunnen. Soon afterwards neighboring cities and districts joined the alliance—Lucerne in 1332, Zurich in 1351, Glarus in 1352, Zug in 1352, and Berne in 1353. The league now comprised the so-called eight ancient cantons. In the year 1481 Fribourg and Soleure were admitted. Later on Basel (1501), Schaffhausen (1501), and Appenzell (1513) joined. From now on until 1798 Switzerland formed a league of thirteen cantons, to which several friendly and affiliated districts, as well as different houses and families, belonged. Common affairs were discussed and regulated by the diet, which consisted of delegates from the separate cantons.

The old league was a confederation. It dissolved in 1798 because of the consequences of the French revolution.

16. *The Helvetic union.*—Owing to the attitude of France, the necessity of a constitution was forced on Switzerland in 1798. The old league was thereby converted into a union under the name of the one indivisible Helvetic republic. The one undivided republic consisted of 19 cantons which were not States, but only administrative districts without sovereignty. The conversion of the old confederation into a union was accomplished too suddenly and occasioned great difficulties.

17. *Acts of adjustment.*—As a union proved indefensible under existing conditions, the First Consul of France, Napoleon Bonaparte, framed a new constitution for Switzerland in 1803. It was called acts of adjustment or mediatory constitution. Switzerland thus became a federation of 19 States, very nearly sovereign. The confederation, however, approached close to a union. The highest authority was vested in the diet, to which each canton sent one delegate. Only cantons with more than 100,000 inhabitants were allowed to send two delegates. Six representative cantons alternately directed affairs. The president of the diet received the title of landamman of Switzerland. In granting more rights to the people, this constitutional adjustment brought about a better state of affairs than existed prior to 1798.

18. *The federal agreement of 1815.*—The fall of Napoleon nullified the constitution forced upon Switzerland by him. With the cooperation of the great powers of Europe, a new constitution, the federal agreement of 1815, was brought into effect. Switzerland then became a federation of 22 sovereign cantons. At the Diet, in which each canton had one vote, the delegates of the cantons were obliged to speak and vote as they had been instructed by their governments. The number of representative cantons was limited to three and the office of landamman of Switzerland abolished. The adoption of the constitution of 1815 was a decided step backward; no rights were granted to the people, and the privileges of old, aristocratic families were not expressly withdrawn. Consequently, the same conditions that existed in 1798 prevailed again in several cantons.

Dissatisfaction gradually spread, and democracy and acknowledgment of the people's rights were set against aristocratic rule. This movement, not always subsiding without bloodshed (Putsche), led to progressive development in most of the cantons since 1830, and finally, in 1848, to a new constitution.

19. *The federal constitution of 1848 and 1874.*—The federal constitution of 1848 marks an epoch in the interior relations of Switzerland. This constitution made Switzerland a union after the model of the United States of America. The year 1874 marked the adoption of a new federal constitution, which was more an enlargement than a complete change of the one of 1848. Since 1874 several articles have been amended or supplemented.

B.—Foundations of the Legal Order in Switzerland.

20. *In general.*—The foundations of the legal order in Switzerland are partly national laws and partly cantonal laws and customs.

The laws of the confederation are unconditionally paramount to the cantonal laws and customs. A national law of itself neutralizes all contradictory cantonal laws and prescriptions. The constitution, the basis of political action, is one of the laws. Besides the laws there are important ordinances and regulations for carrying them out. The political treaties between Switzerland and foreign countries, or among the cantons themselves, have the same force as laws.

21. *Foundations of national law.*—The chief foundation of Swiss legal order is the federal constitution of 1874, with later amendments and additions.

Only those laws are national which have gone into effect since 1848; provided they have not been annulled or replaced.

The numerous political treaties between Switzerland and foreign countries have similar significance.

22. *The foundations of cantonal laws* are the cantonal constitutions, laws, and ordinances since 1803, in so far as they have not been annulled or replaced.

The political treaties among cantons (concordats) formerly in force for the better enactment of laws were, at one time, of importance; later federal laws have rendered them superfluous. In some cantons legislation is not complete; old customs hold good to the same extent as statutes in some fields of the law.

Cantonal constitutions, laws, ordinances, and customs are valid only when they are not contradictory to the Federal constitution, national laws, resolutions, and ordinances, or a national political treaty.

C.—Nature of the Swiss State.

1.—CONFEDERATION AND CANTONS.

23. *Relation of the confederation to the cantons.*—The confederation is a State consisting of 22 or, reckoning half cantons, 25 separate States. The distinction between the confederation as a State and the cantons as parts of that State does not refer to territory and population. Both of these are common to the confederation and the cantons. The distinction lies in legislation, administration, and jurisdiction. The confederation has its definite attributes, and where these maintain cantons are subordinate. When cantons are not restricted by the confederation, they are sovereign. Relations with foreign countries are determined by the confederation. It has the right to declare war and peace and negotiate contracts and political treaties, as well as customs and duties, acts and commercial treaties with foreign countries. It is only in exceptional cases that cantons, under supervision of the confederation, can negotiate treaties with foreign powers on subjects of minor importance, as, for instance, fishing in boundary waters.

24. *Protection of the cantons by the confederation.*—The confederation protects the cantons, their province, constitution, and officials. It also protects individual citizens against aggressions of cantonal officials. The confederation has a right to interpose when interior order and peace are disturbed (federal intervention).

25. *Guaranty of cantonal constitutions.*—Cantons must submit their constitutions to the confederate convention for approval, which is given only when the constitution in question throughout supports federal rights; is republican, i. e., invests the people themselves or their representatives with the highest power, and may at any time be revised when an increase of citizens so demands.

2.—CITIZENSHIP IN SWITZERLAND CANTONS AND TOWNS.

26. *In general.*—Swiss citizenship is the state of being vested with the rights and privileges of a Swiss citizen. Every citizen of a canton is a citizen of Switzerland. No one can be a citizen of Switzerland without enjoying the rights of cantonal citizenship. The latter is combined with town citizenship.

Swiss citizenship is not limited by time, no matter how long a Swiss may reside in a foreign country. Cantons have not the right to banish their citizens or deprive them of citizenship.

27. *Acquisition of Swiss citizenship.*—Citizenship is hereditary. Children of Swiss citizens are citizens of Switzerland, even though they may have been born in a foreign country. Foreigners become citizens by naturalization. To be naturalized, an applicant must have lived at least two years in Switzerland, and be no longer subject to enlistment; the grant of naturalization must be obtained from the Administrative Federal Council; enfranchisement takes place when a canton bestows citizenship upon the applicant. This is done only after he has been assured of communal citizenship.

28. *Forfeiture of citizenship.*—The rights of a Swiss citizen, and thereby those of a Canton or town, are forfeited only by residence in a foreign country and by application for the naturalization of a citizen and his family elsewhere. At the death of the father, a family can apply for readmittance as citizens of Switzerland.

29. *Citizenship in Cantons and towns.*—Anyone can be invested with citizenship in another Canton, provided that he has been naturalized in a particular place of that Canton. In this case he can retain or renounce his rights as a citizen of the Canton and town which he has left. It sometimes happens that a person desires naturalization merely in a different town of his native Canton. In most Cantons communities are obliged, under fine, to invest with citizenship cantonal citizens living within the community.

3.—RESIDENCE, ABODE, SOJOURNMENT.

30. *A residence* or domicile is the place where a person intends to dwell permanently. A person can have but one place of residence. Temporary absence does not change his residence. A change of location, with the intention of permanently dwelling elsewhere, removes residence from one place to another. Residence is of the greatest importance, as citizens are subject to the laws of residence, and are accordingly taxed and summoned before court (civil domicile).

31. *Abode and sojournment.*—These terms apply to the place where certificates of citizenship are delivered. This place regulates the exercise of political rights (political domicile). Abode and residence, therefore, have different meanings under different circumstances. The distinction between abode and sojournment is not defined by federal, but by cantonal, law. As a rule, servants, journeymen, and students are considered merely sojourners.

4.—RELATION OF THE CANTONS TO ONE ANOTHER.

32. *In general.*—Cantons can not form separate leagues among themselves, but can negotiate treaties on the subjects of legislation, jurisdiction, and administration. If one Canton has been wronged by another, it must withhold all self-redress and abide by the decision of the Federal court.

33. *Uniform treatment of citizens of other Cantons.*—No Canton has the right to treat citizens of other Cantons more unfavorably than its own.

The resident of any Canton, together with his family, is subject to its laws, and can not appeal to the legislation of his native Canton, excepting in cases of wills and improvement or maintenance of family possessions. Cantons can not tax a temporary resident who is a Swiss citizen for what he already pays taxes on in a different Canton. Cantons must care for poor, sick strangers, as for their own citizens, and must provide decent burial in case of death. The courts of one Canton can not decide the claims of anyone who is a resident of another Canton.

34. *Extradition treaties.*—Cantons are bound to mutual assistance in delivering fugitives from justice, or punishing them, by carrying into effect the sentences passed upon them in other Cantons.

III.—ORGANIZATION OF THE STATE.

A.—IN GENERAL.

35. *Kinds of boards.*—The State is so organized that boards are established for the direction and regulation of affairs. According to their chief duty, they are distinguished as boards of legislation, government, administration, and jurisdiction.

Several persons or one individual may constitute a board; in the first case it is a collegiate board; in the latter an individual board. The highest power of the Confederation, as well as of the Cantons, is vested in collegiate boards.

Members of boards, in so far as they have a defined professional capacity, are called officials. Their assistants are placemen.

36. *Competence.*—Every board has its definite duties and qualifications, known as its competence. The question may arise whether a case belongs to the competence of this or that board. Such a state of affairs is known as disagreement in competence.

37. *Duties of boards.*—It is the duty of members of boards and their subordinates to fulfill their obligations conscientiously. They generally swear the oath of office, or a vow. Officers and their subordinates are responsible for their administration. Those in power over them can depose or punish them for a violation of duty. If they have wronged anyone, they must yield indemnity. Should they be guilty of a penal act, they are judged by the criminal court.

38. *The official language.*—The three national languages—German, French, and Italian—are permitted in interviewing State officers. In the Cantons it depends upon which language is predominant; in some there are two official languages.

39. *Places where boards meet.*—Boards meet within the territory under their control and where they act officially. The seat of Federal boards, with the exception of the Federal court, is Berne. Lausanne is the seat of the Federal court. Cantonal boards meet in the chief towns of the Cantons; district boards in the chief towns of the districts.

40. *The official press.*—The acts and laws of the above boards are made known to inferior boards and the people through the official press and official collections of laws. The Confederation has several official organs—the Federalist (Bundesblatt), the Official Trade Journal (Handelsamtsblatt), the Army Record (Militärverordnungsblatt), etc.

B.—Federal Boards and Officers.

1.—THE FEDERAL CONVENTION.

A.—In general.

41. *The two-chamber system.*—The Federal convention consists of two chambers, divisions, or councils—the National Council and the State Council. The National Council represents the people of Switzerland in general; the State Council represents the Cantons.

42. *Procedure.*—Each division of the Federal Convention manages affairs specially, excepting in certain cases when both chambers unite. Both councils meet at the same time in Berne. Sessions open in regular order the first Monday in June. The convention may assemble any time during the year, as necessity demands; it always meets for a several weeks' session during December. Neither council can adjourn or close its sessions unless the other does likewise.

The Administrative Federal Council defines the subjects for discussion and calls the councils to session. The presidents of both councils agree as to which chamber shall have priority in first discussing a certain affair; this agreement is submitted to their councils for confirmation. After a subject has been discussed in one council, it is referred to the other. If both chambers agree on all points, the question is decided; should objection be raised, the question is again referred to the first council. This action continues until the question is either decided by the agreement of both chambers or falls to the ground. The members of both councils have a free vote. Majority decides in all cases, though at least half of the members must be present to constitute a quorum.

The common session of both councils, with the president of the National Council as chairman, is called the Joint Federal Convention. It is called only to decide elections for the Federal Convention (the federal council, the federal court, the office of general), to exercise pardoning power, and to decide disagreements in competence between federal boards.

B.—The separate councils.

43. *The National Council.*—The National Council is elected by the people. One delegate is elected from every 20,000 inhabitants; a fractional number greater than 10,000 is likewise entitled to a delegate. Every canton and every half canton can elect at least one delegate. Federal legislation divides the larger cantons into electoral districts. The term of office in the National Council is three years. An entire change of membership occurs every three years on the last Sunday in October.

Every Swiss layman who has the right to vote is eligible to membership. The same person can not be a member of the National or State Councils and a federal officer at the same time. Members draw a salary of 20 francs per day; their traveling expenses are paid out of the public treasury. The president of the council can not hold office for more than one year.

44. *The State Council.*—This council consists of delegates from the cantons, 44 in number. Every canton elects 2 delegates, every half canton 1 delegate. Cantons are free to act in the manner of election. In some cantons members are elected by representatives of the people (cantonal council, great council); in others, by the people themselves. The cantons likewise decide upon the length of term and the salaries to be paid out of the public treasury. The president is elected for one year; the president of the ensuing year must be chosen from the delegates of another canton.

2.—THE ADMINISTRATIVE FEDERAL COUNCIL AND FEDERAL OFFICERS.

45. *The Administrative Federal Council.*—The Administrative Federal Council is the board of government of Switzerland, and is the highest executive and administrative power. It consists of seven members chosen for three years from among the members of the Federal Convention. Election is confirmed by the Federal Convention after the entire change of membership in the National Council during the December session; the term of office begins with the first of the following January. Only one member can be elected from among the voting citizens of one canton. A president acts as chairman, he has the title of president of the confederation, but he is not the president of the Republic as in France or in the United States. The president has no greater competences than the other members. He is chosen by the Federal Convention for one year, and is not eligible to the presidency or vice-presidency during the ensuing year. Every member is at the head of an administrative or executive department. The different departments are those of exterior, interior, justice and police, army, finances and taxes, industry, agriculture and trade, mail and railroads.

46. *Federal court of chancery.*—The Federal Council is assisted by the chancery, which attends to protocols and the carrying out of resolutions of the Federal Council and the Federal Convention, the keeping of the archives, the registry, and translation and publication of resolutions and laws; it is, in fact, charged with the superintendence of all affairs of chancery of the Federal Council and the Federal Convention. The head of this office bears the title of chancellor; he is elected for three years by the Federal Convention at the same time as the Federal Council. His occupation is to authenticate. He is assisted by two representatives (vice-chancellors) and the necessary officers and place men.

47. *Federal officers.*—All federal officers, excepting the chancellor, the general members of the federal court, and its court of chancery, are elected by the National Council for a term of three years. Officers are distinguished as assistants and place men. The Federal Council has the right to associate men of the learned professions.

3.—THE FEDERAL COURT OF LAW.

48. *Constitution.*—The federal court has been established for the exercise of judicial power as it pertains to the confederation. The number of members is determined by law, according to necessity; at present there are 16 members and 9 substitutes. They are elected for six years by the Federal Convention. In their election the three national languages are taken into consideration. Every voting citizen is eligible to membership. The court chooses its clerks. As it would be impracticable for the entire federal court to meet for all cases, different divisions transact different classes of affairs.

49. *Confederate assizes.*—There is also a confederate court of assizes. Every six years cantons elect their jurymen. When the court of assizes meets, the necessary number of jurymen are selected. The court of assizes is under the superintendence of the federal court.

C.—Cantonal boards and officers.

50. *Representations of the people.*—The highest cantonal power is vested in the cantonal council, also called great council or district council. It consists of delegates elected by the people, and transacts affairs of greater importance. Some cantons also have a communal council, of which any voting citizen may be a member.

51. *Governments.*—Cantons are governed by what is called a Government or State council. It consists of several members elected either by the people or the cantonal council.

52. *Officers.*—Officers are elected by the Government, the cantonal council, or the people. There are cantonal or district, town, and communal officers.

53. *Courts.*—Cantons have a superior court—called also cantonal court or court of appeals—district courts, or courts of justice, and besides criminal courts, or courts of assizes. In some cantons commercial courts are established to settle disputes in trade. Here and there industrial courts of arbitration are established to settle disputes between manufacturers and their clerks, hands, and apprentices. Throughout many cantons, moreover, justices of the peace decide minor cases and settle disputes.

D.—Political rights (people's rights).

54. *In general.*—The people cooperate in the administration and regulation of affairs of State as well as in legislation and elections. The rights of the people to cooperate in administration are called people's rights; the rights of individual citizens political rights, which consist of vote and eligibility to office. The State is divided into electoral districts. Elections are decided by majority or a relative or proportional vote, which latter method is affected by party numbers.

55. *Vote and eligibility to office.*—Every citizen above 20 years of age has a right to vote. Cantons can disenfranchise those under punishment of the law, bankrupts, those whose goods are distrained, paupers, and those under guardianship.

56. *The confederate vote.*—In confederate elections anyone can vote where he resides, and at once after he has delivered his certificate of citizenship. Registrations can not be closed earlier than three days before the time of election. No one can vote in two places at one election.

57. *Voting in the cantons.*—Every citizen of Switzerland can take part in the affairs of the canton and community in which he is, providing he has been living there for three months. Cantons, however, have the right to object to the voting of a three-months' resident, and can exact a longer time from mere sojourners (journeymen, servants, etc.). The right of vote in communities refers to political communities. In affairs purely civil and religious, only those can have a voice who belong to the civil or parochial district in question.

IV.—LEGISLATION.

A.—Legislation in General.

58. *The law.*—The law is the order of the State, to which officers and citizens must conform to avoid unpleasant results. The most important law, also called the fundamental law, is the constitution. Prescriptions, orders, decisions, and regulations, as well as signed political treaties, have the same effect as laws.

59. *Legislation.*—The constitution defines with exactness who, in every State, has the power to carry laws, decisions, and prescriptions into effect. Laws are first deliberated and then enacted. For the making of a law the decisions of several boards, or of one board and the people, are necessary. To be effective, laws must be made known to officers and the people. For this reason they are printed and published.

B.—Federal Legislation.

1.—THE CONSTITUTION.

60. *Total revision.*—A total revision of the federal constitution implies that every article is deliberated and a new constitution framed. The Federal Council or any single member of the Federal Convention can make a motion for total revision. If both chambers agree to the proposition, the question is deliberated. If one chamber agrees and the other dissents, a national vote decides. If an application for total revision has 50,000 signatures, the Federal Council must call a national vote. If the people decide in favor of it, both councils are renewed, and the newly elected councils must deliberate a new constitution, which is submitted to the people.

The revision agreed upon by the Federal Convention is submitted to the people. The new constitution is accepted, if the majority of voters and the majority of cantons are agreed.

61. *Partial revision.*—Partial revision implies the amendment of single articles of the federal constitution or the adoption of new articles only. The motion can be made by the Federal Council or by any member of the Federal Convention. If in this case only one council agrees, no national vote follows. The question simply falls to the ground. If both chambers agree upon partial revision, the new article is submitted to the vote of the people, and is accepted if the majority of voters and the majority of cantons are in favor.

The people can demand a partial revision directly by initiative. Fifty thousand signatures to an application necessitates the calling of a national vote on a proposed article. The Federal Convention can at the same time submit a counter proposition to the vote of the people.

2.—LAWS AND RESOLUTIONS.

62. *Kinds.*—The federal constitution distinguishes between laws and resolutions. Laws are more permanent; resolutions are temporary. They are generally or not generally binding, in so far as they apply to general or special conditions. Resolutions on the payments of money are not considered generally binding.

63. *Referendum.*—Laws and resolutions are enacted by the Federal Convention. As a national vote must always take place for a total revision of the federal constitution, as well as for an amendment or adoption of articles, in case of laws and resolutions it is called only when 30,000 inhabitants or 8 cantons so demand (facultative referendum). In voting on the constitution, a majority of voters and cantons is necessary for decision; on laws and resolutions a majority of voters suffices.

A referendum can not be had in cases of resolutions declared urgent though not generally binding, no more than in cases of political treaties (treaties with other States) ratified by the Federal Convention.

3.—PRESCRIPTIONS AND REGULATIONS.

64. *Significance.*—Laws are sometimes limited to the establishment of fundamental principles, and themselves provide to dispose details by means of prescriptions and regulations. These prescriptions and regulations must be definitely within the bounds of the law, of which they are but a closer application.

65. *Competence.*—The Federal Council is empowered to enact prescriptions and regulations. The federal court has the right of jurisdiction over debt and bankruptcy.

C.—CANTONAL LEGISLATION.

66. *Constitution.*—The constitutions of cantons, as well as amendments, are generally discussed and decided by representatives of the people (cantonal council, great council, district council). In some cantons a special committee, the committee on constitution, is elected for the sole purpose of totally revising the constitution. All new constitutions and amendments must, in accordance with the federal constitution, be submitted to the people for acceptance. Revised constitutions must, moreover, receive the consent of the Federal Convention. In many cantons the same right prevails as in the confederacy, that a number of qualified voters may claim a revision or a change in a specified point (constitutional initiative).

67. *Laws.*—In all cantons laws are primarily discussed and established by representatives of the people. In most cantons they are also submitted to popular vote (obligatory referendum). In some cantons a popular vote is called only when a certain number of qualified voters so demand (faculty referendum). In a few cantons the right obtains for a number of qualified voters to demand the enactment of a certain law or amendment (legal initiative). A few cantons have as yet no legal appeal (Freiburg, Wallis).

68. *Prescriptions.*—Cantonal governments have the right to enact prescriptions for the carrying out of laws.

V.—ADMINISTRATION.

A.—GOVERNMENT.

69. *Federal government.*—The Federal Council is the administrative head of Switzerland. It provides for the execution of the constitution and other laws, and gives the necessary directions. It prepares all the requisites for the Federal Convention. It protects the interests of the confederacy from without and guards interior security. The whole administration of the confederacy is in its hands.

70. *The governments of cantons* likewise administer interior affairs, dispose the requisites for a proper execution of the constitution and other laws, maintain peace and order, and direct and superintend the whole administration of State. They have no direct intercourse with foreign governments, but must solicit the mediation of the Federal Council.

B.—FINANCIAL SYSTEM.

71. *Federal financial administration.*—As finances affect the well-being of the whole State, their proper management becomes the first duty of the State. Expenses and receipts are determined a year in advance by means of specifications. The budget is prepared by the Federal Council, and submitted to the approval of the Federal Convention. All demands of the Federal Council must be indorsed

by the Federal Convention (additional credits). A member of the Federal Council is at the head of the department of finances. The chief receipts consist in duties. The postal and telegraph service also yield an income to the State. A direct tax is not levied by federal authority. The Federal Council turns in an annual account. This public account must be approved by the Federal Convention. The confederacy alone has the right to impose duties, arrange postal matters, and superintend the telegraph and telephone. Such rights are called monopolies or regalia. The production of alcohol is also a federal monopoly, from which, however, cantons receive some benefit.

72. *Financial administration in the cantons.*—In cantons, likewise, a yearly budget is laid before the representatives of the people for approval. The statement of public accounts likewise requires the approval of these authorities. Here and there a resolution of the people is necessary to incur greater expenses. The receipts of cantons are derived from dues which officers receive for functions (indirect taxes), or from direct taxation of property and income of the population. Frequently individuals are taxed without respect to possessions and profits (capital and household tax). As individuals of means can do more, even irrespective of their possessions, than the poor, the more recent tax laws are nearly all based upon the principle of progression. Inheritances are also taxed; in many places there still exists a stamp tax. Cantons can not levy duties or exact toll. The profits of the alcohol monopoly are divided among the cantons with respect to population; 10 per cent must be spent on the temperance cause (alcohol tithe). Cantons likewise receive one-half of the military tax for nonenlistment. Most cantons have made a monopoly of the salt traffic—that is to say, the canton alone has the right to introduce salt and control the market.

C.—The Military System.

73. *Nature of the Swiss military system.*—The military system of Switzerland is based upon the militia system. There are no standing regular troops, but every citizen is required to engage in actual service when summoned. If he is prevented by physical disability or any other cause, he must pay a military tax. The militia is a federal affair; cantons have hardly a voice in the matter.

74. *The Swiss army.*—The Swiss army is composed of the marching division, the landwehr, and the landsturm. The younger reserves belong to the marching division; the older to the landwehr. Such citizens as have never performed military service also belong to the landsturm. The Swiss army is locally divided into eight divisions. It has special laws for crimes and misdemeanors committed in service (military jurisprudence). In case of war the Federal Convention elects a commander-in-chief (general), whose powers are withdrawn at the close of the war.

D.—Education.

75. *In general.*—Every State must fulfill the important duty of properly educating its citizens, that they may maintain a position in the battle of life. Schools are divided into people's schools, secondary and higher schools. Cantons are obliged by the federal constitution to provide adequate primary instruction, which is compulsory. Children of a certain age are obliged to receive instruction, which must be so arranged that all of whatever creed they may be may benefit by it.

76. *Federal action.*—In accordance with the present constitution, the Federal Government pays little attention to educational matters. It supports the polytechnic school in Zurich, and has the right to found a confederate university, not yet begun. The Government allows appropriations for industrial, commercial, and agricultural schools and for schools of domestic economy.

77. *Activity in the cantons.*—Outside of what is done by the Federal Government, the cantons bear the whole burden of educational affairs. Single commu-

nities, or several smaller communities together, have one or more primary schools. Besides these there are general and technical continuation schools, district schools, classical and modern high schools, and universities.

E.—The Public Good.

78. *In general.*—As it is the duty of a State to promote the welfare of its citizens in every respect, the care of the public good embraces the various subjects of advancement of political economy, protection of the laboring class, promotion of health, preservation of nature, and encouragement of art and science.

79. *Advancement of political economy.*—The State is in duty bound to advance political economy; it should encourage production, trade, and commerce to the full extent of its power. For this reason, it endeavors to elevate the standing of the people by supporting expositions, by granting bounties for agriculture (subventions), by facilitating trade by means of uniform coins and measures, by financial aid in building dams, by encouraging industries through premiums, expositions, and elevation of apprenticeship, etc. The mail, telegraph, and telephone service should be managed for public benefit only; the question is being agitated to bring railways under federal control and to manage them for public interest. For the promotion of industry, inventions are protected by patent rights; manufactures are protected by trade-marks.

The importance of the different divisions of political economy has led to a distribution of administrative power among the departments of industry, agriculture, and trade, mail, telegraph, and railways. The same departments exist in the cantons.

80. *Protection of the laboring class.*—The State lends its support to the laborer so that he is better able to earn a livelihood. The wage earner needs the State's protection. Legislation for the benefit of the laborer is called labor laws. These apply to superintendence of factories in respect to hygiene, limitation of time, particularly during the night and on Sundays and holidays, prohibition of child-labor, and indemnity in cases of accident. The motion has been made to institute State benefits for the sick, etc.

81. *Promotion of health.*—It is primarily the duty of the individual to care for his health, but the State must assist.

The confederation takes precautionary measures against dangerous contagious diseases, so-called epidemics, as typhoid, cholera, smallpox, etc., and against epidemics among animals. Cantons are required to promote the public health by educating physicians, erecting hospitals and insane asylums, by free medical attendance and nursing of the sick, by superintendence of food, and severe measures against adulterations.

The communities extend the amplest means for preserving health by furnishing proper attendance in cases of sickness and accidents, by caring for the sick poor without pay, by furnishing good drinking water and discharging all injurious matter, by a strict superintendence of food, etc.

82. *Preservation of nature.*—It is well known how significant climate and soil are for the well-being of a population. Because of their important relations to weather, forests should be protected first in order; therefore, they and mountain waters are under the supervision of the confederation. Generally a special department in the cantons has charge of preserving forests. A special legislation and supervision obtains for the protection of fish, birds, and other game, as much for sparing the animals themselves as for the benefit which man derives from them.

83. *Encouragement of art and science.*—Art and science should receive attention from a nation; therefore a State should do all in its power to encourage them by establishing public collections and libraries, by purchasing works of art, etc.

84. *Expropriation.*—The State recognizes the property of an individual from principle and protects it against unjust seizure. But when the public good demands it, as in the construction of public buildings, railways, canals, and reservoirs, the individual must give up his property, even against his will (expropriation, condemnation).

F.—Other Branches of Administration.

85. *Justice.*—The department of justice prepares laws relating to penalty and private rights; it superintends all judiciary action, and proposes measures for improvements and remedying evils; it decides questions of complaints rendered, and supervises the civil and commercial register. The confederation and individual cantons here separate the departments of justice.

86. *Police.*—The department of police protects individuals and possessions. The police must see that strangers threatening the security of the State from without or within quit the country, and that criminals are brought to law. The confederation and cantons have separate departments of police. Communities must provide a proper police force. The fire police is a community affair.

87. *Poor laws.*—The maintenance of the poor is particularly a cantonal affair, which is transacted by communities. Different arrangements exist for the support of the poor. In some cantons the needy are provided for by the canton in which they live (local support); in others their support is an affair of their native community. In cases of extreme necessity, however, the community in which they live must provide temporary relief, and burial in case of death.

88. *Guardianship.*—The laws of guardianship are cantonal affairs, primarily administered by communities. In every canton there exist supervisory boards.

89. *Communities.*—The supervision and administration of communities is under the cantonal governments, which have special departments for this purpose (the interior).

VI.—RIGHTS AND DUTIES OF INDIVIDUALS.

A.—Individuals.

90. *Personality.*—Every inhabitant, be he an adult or child, is capacitated for rights and duties; consequently, everyone is qualified to be under law; but rights and duties belong to a number of persons forming a collective unit under a special name, as, for instance, communities, societies, guilds, and unions. So we speak of them as individuals by law.

91. *Independent action.*—Even though rights and duties belong to mankind in general, not everyone is able himself to acquire and establish them. The ability to do so, called independent action, begins at the close of the twentieth year of age, the time of legal maturity. Minors are bound to the consent of parents and guardians. When those of age are under guardianship, because of mental or physical incapacity, they are deprived of independent action. It is evident that the insane are incapable of acting legally. In some cantons minors above 18 years of age can execute wills.

Political rights, the right to vote, and eligibility to public office begin with the completion of the twentieth year of age.

92. *Responsibility for injuries.*—Anyone, in so far as he is accountable, is responsible for an intentional injury to others or one that results from negligence. Accountability is a question of age and intellectual ability. It may begin as early as the twelfth year of age; with undeveloped children it begins later. After consideration of all circumstances, the judge decides the question of accountability. The responsibility for forbidden acts is twofold. On the one hand damages are repaired by money, and on the other hand, if the act is forbidden by statute, the culprit is also punished.

93. *Representatives of individuals.*—Incapacitated persons need a legal representative, who, when necessary, acts for them. A father, or, if he be dead, a mother or guardian, is a legal representative. Individuals by law likewise have their representatives (administrators, directors, etc.). A power of attorney gives one person the right to act in the place of another. Political rights alone are not transferable.

94. *Sex.*—With rights and duties, no distinction is made between the sexes. Political rights form an exception. Women are not allowed to vote, and are not eligible to public office.

95. *Merchants.*—A merchant is one who carries on, or controls the management of, a commercial or manufacturing business. Merchants must be enrolled in the commercial register. They are subject to bankrupt laws for debt.

96. *The civil register.*—The relations of a person with respect to birth and name determine his civil position, which is recorded in the civil register. In recording births, the Christian name and surname, the names of parents, and place of birth must be mentioned. Deaths are similarly registered. Marriages are likewise recorded.

97. *The commercial register* is kept for the purpose of acquainting the public with the formation and representation of mercantile firms, that they may have full confidence in the statements given.

B.—Public Rights and Duties.

98. *Summary.*—Public rights and duties are those of individual citizens with respect to State authority. They are defined principally by the federal constitution; some are guaranteed by the cantonal constitutions. Public rights, also called individual rights or rights of liberty, are a claim to equality before the law, free residence, the liberty to engage in any industrial or commercial pursuit, the liberty of petition, the liberty of union, the liberty of the press, free worship, liberty of conscience, and the political rights already mentioned. Public duties are enlistment in military service and payment of taxes.

99. *Equality before the law.*—All citizens are equal before the law; no distinctions can exist that wound republican feeling. Everyone has the right not to be treated arbitrarily and to have his cause heard by State authorities.

100. *Residence.*—One of the most important liberties is the right of free settlement. Every citizen may live where he pleases, provided he have a certificate showing that he is a native of Switzerland. The right of residence can be refused or withdrawn only for bad conduct or dependence upon public charity.

101. *The liberty of industrial and commercial pursuits.*—Fundamentally, everyone can engage in any industry according to pleasure. Formerly, in the time of guilds, things were different. The liquor traffic forms an exception. This industry is dependent upon a permission (license or concession) which is given only in necessity and upon the receipt of proofs for definite requirements. Other industries are subject to certain restrictions, as pharmacy and the manufacture of inflammable and poisonous substances; just so the practice of certain professions, as those of lawyers, physicians, and teachers, are dependent upon certificates.

102. *The liberty of petition, of union, of assembly, and of the press.*—Every citizen is allowed to refer a proper cause to State officers (the liberty of petition). Citizens are likewise allowed to form unions, even political, which are forbidden in monarchies (the liberty of union), and to call meetings at pleasure (the liberty of assembly). The liberty of the press consists in a free and candid expression of opinion, which, however, must incur no breach of honor.

103. *Free worship and liberty of conscience.*—Free worship and liberty of conscience is one of the most beautiful and valuable principles. It consists in everyone's being permitted to live up to his religious convictions without fear of persecution.

C.—Penal Laws.

104. *In general.*—Every State has laws the violation of which entails not only responsibility for the damage done but punishment also. According to their weight, punishable acts are crimes, offenses, or mere misdemeanors. Punishments are either losses of money or liberty. In some cantons, crimes exceptionally great, like murder, are punished by death. The severest forms of loss of liberty are the penitentiary or incarceration, the workhouse or imprisonment. The instigators and accomplices are punished as well as the perpetrators of a crime. Punishment naturally presupposes accountability. Whoever acts out of self-defense is exempt from punishment; the transgression, however, is punishable. If a guilty party has not been prosecuted during a certain length of time, the punishment of the offense is prescriptive. The penal prescriptions are contained in several of the federal laws, but principally in the cantonal penal-law books. The confederation has penal prescriptions for crimes against the confederation and confederate authorities, as well as for transgressions against federal decrees. Cantons define the prescriptions for other crimes, offenses, and transgressions.

105. *Crimes and offenses against the State and its officers.*—High treason, namely, acts designed against the independence of the fatherland, is the greatest possible crime. Other crimes are unjust attacks on State authority, disobedience against official commands, etc.

106. *Crimes and offenses against life and health.*—The greatest crime in this respect is murder, which is the deliberate and intentional killing of anyone. Manslaughter is the killing of a man, possibly voluntarily, but without deliberation, in the heat of excitement. If a man be wounded without intent to kill and death results, it is called a wound of fatal issue. Corporal injuries are called wounds. They are divided into severe and light wounds. Only a mild punishment is given in cases of death or wounds inadvertently caused.

107. *Crimes and offenses against property.*—The most frequent crime against property is theft—the unjust appropriation of another's belongings. The value of the goods and the manner of perpetrating the theft affect the culpability of the act. Housebreaking, entering premises, and the use of weapons aggravate the offense. If theft is committed by using force or threats, it is called robbery. Embezzlement is the appropriation to our own use of another's goods committed to us for safe-keeping. The acquisition of advantages by intentional deception is fraud. The gaining of advantages by threat is extortion. The destruction and injuring of goods (defacement) is likewise punished; its worst form is arson. Whoever buys or secretes goods which he knows or has reason to believe have been stolen is punished for the concealment of stolen goods. Counterfeiting money and falsifying titles are also crimes against property.

108. *Crimes and offenses against honor and morality.*—Calumny is an intentional harm done to another's honor or credit by false reports. Insults are expressions against anyone's honor. Immoral actions are punished by law.

109. *Other offenses and transgressions.*—Besides what have been mentioned, there are a number of prescriptions, the violation of which entails punishment. Various penal decrees relate to food, the chase, fishing, etc. There is hardly a law that does not contain some penal decree.

D.—Civil Laws.

110. *Introduction.*—Civil laws, also called common laws, include the relations of the citizen with respect to family and possessions and determine the rights and duties which proceed from the family and intercourse. Civil laws are divided into laws of family, laws of goods, laws of obligations, and laws of inheritance. Almost all but the laws of obligations are defined by cantonal legislation. The laws of obligations are included in a special federal law.

111. *The laws of family.*—The family consists of parents and their issue. It is founded by the making of marriage vows. For a marriage to be legal the groom must be 18 years and the bride 16 years of age. Minors must have the consent of their legal representatives. Mental disease, an already existing marriage, close relationship, or affinity by marriage are obstructions. Before the marriage is confirmed it must be announced by the civil officer; afterwards the religious ceremony may take place. The marriage is annulled if hindrances exist—an existing marriage, relationship, etc. There can be a divorce on valid grounds.

By marriage a woman enters upon a relation to her husband also with respect to her possessions; this is called the marital property relation. In most cantons the husband accordingly has the right to administer his wife's possessions in so far as the wife has not reserved her right by contract. If the husband becomes bankrupt, his wife is a preferred creditor for the half of her possessions.

Parents have the right, and it is their duty, to educate their children and provide for them. It is the duty of children to care for their poor parents. In some cantons parents without children can adopt strange children.

Guardians are appointed over orphans, as well as those of majority who need supervision on account of being spendthrifts or mentally or physically disabled.

112. *The laws of goods.*—Goods are objects which belong to trade. They are movable or immovable; movable goods are called wares; immovable goods are grounds and buildings. Ownership implies the full legal right to goods. It is acquired by purchase, exchange, gift, inheritance, or long-continued possession (limitation). The right to use strange immovable goods, or render them serviceable in a definite direction, is called the right of service, as, for instance, the use of grounds, the right of roads, etc. If goods are held only as a security for a claim, the possessor is called a mortgagee.

Whilst the exchange of movable goods is easily effected, the legal relations of fixed property are often defined with difficulty. For this reason the records (Grundbücher) have been instituted, in which the titles of property are registered.

113. *Laws of obligations.*—Obligations are responsibilities for debt. As a rule, they arise from contracts, as agreements for purchase, rent, lease, and service. They also arise from forbidden negotiations, whereby the one at fault becomes indebted for indemnification. Different forms of proofs for claims and debts, specially designed as evidence, are notes, bills of exchange, and checks.

114. *The laws of inheritance.*—The possessions of anyone deceased fall to his relations; if there be no immediate family, they are divided among his brothers and sisters, or more distant relations. A man has the right to will his possessions at his own pleasure; his near relations, however, can not be totally ignored; they have the right to a certain legacy by law. If there are no near relations, and there is no will, the inheritance reverts to the communities or to the cantons.

VII.—THE JUDICIARY SYSTEM.

A.—In General.

115. *Duties of the judiciary department.*—It does not suffice for State legislation to define rights; it must also provide for their maintenance and protection. This is done by the judiciary, whose power is primarily vested in the courts. The administrative power is also called upon to support rights in certain directions (administration of justice).

116. *Procedure.*—The process in a lawsuit is a series of acts and investigations countenanced by the judiciary and superintended by a judge. The chief feature is the opportunity for expression given to both parties. The proceeding concludes with a decision or sentence. The sentence must then be carried out (execution).

According to the rights to be protected, we distinguish the systems of public law, penal law, and civil law.

B.—The System of Public Law.

117. *Disagreement in regard to public law.*—Different State boards may differ in opinion on competences; or an individual citizen may feel that his public rights have been infringed upon. If boards have different views as regards their competences, we speak of disagreements in competences. If federal boards disagree, the Federal Convention decides; if the confederation and cantons, or the cantons themselves disagree, the federal court decides. The federal court or the Federal Council decide disagreements between citizens and federal boards.

118. *The right of appeal.*—If a citizen believes that any public right granted to him by the federal or cantonal constitution has been infringed upon, he can hand in a writ of complaint against the offending board to the federal court (right of appeal). In cases of infringement on political rights and the liberties of commerce and industry, the appeal must be made to the national council.

C.—System of Penal Law.

119. *The system of penal law in the Confederation.*—The milder violations of penal decrees contained in federal laws are passed over to the cantonal courts of trial. Graver violations are tried by the federal court, which even acts in conjunction with the court of assizes for judging certain crimes, as high treason, rebellion, and violence against federal authority and political crimes and offenses that occasioned federal intervention.

120. *The system of penal law in the cantons.*—The method of procedure in determining crimes and offenses and judging the guilty is different in the different cantons. Milder cases are tried in the lower courts; graver cases, in the so-called criminal courts or courts of assizes. The charge is usually brought forward by the State's attorney, a lawyer officially appointed, who founds the charge and decides upon a right of appeal to a higher court. The accused is allowed to have a defendant; in weighty cases he is provided with a defending attorney.

121. *System of military penal law.*—A court-martial tries crimes and offenses committed in service, as has been already mentioned. Every division has a military court composed of officers and soldiers.

D.—System of Civil Law.

122. *System of civil law in the cantons.*—Minor suits are usually settled by individual judges. Serious cases are taken before district courts (the first instance), and upon appeal of one party, to superior courts for sentence. The method of procedure is not alike in all cantons. In some cantons the parties deliver their charges and causes verbally; in others they must hand in writs of complaint and defense.

123. *The federal court in connection with civil law.*—The federal court judges only certain cases of civil law.

Certain suits can and must be brought directly before the federal court without consideration of cantonal courts. To this class belong civil suits between the confederation and cantons or between cantons, independent of the worth of the cause; suits between private parties or corporations as plaintiffs and the confederation as accused, provided the cause of dispute is estimated at 3,000 francs at least, suits between a canton on the one hand and private parties or corporations on the other, provided the cause of dispute is valued at not less than 3,000 francs and one or the other party demands it; finally a series of suits affecting railways, so-called emission banks, patents of inventions, and telegraph and telephone lines.

The federal court furthermore decides all cases that have been previously judged in cantonal courts from which an appeal has been made to the federal court. An appeal can be granted only when the dispute is to be decided according to federal laws; therefore principally in cases of obligations and when the cause of dispute is valued at not less than 2,000 francs.

124. *Prosecution for debt and bankruptcy.*—If anyone has an indisputable claim; consequently a claim entitled to legal judgment or the proof of a debt, he can prosecute the one unwilling to pay for debt. If the debtor is mentioned in the commercial register, this action leads to bankruptcy; otherwise to distraint. In cases of distraint goods are taken and sold by auction until the sum of the claim has been realized. In bankruptcy, all the possessions of the debtor are sold at auction, and all creditors invited to make good their claims. In distraint, as well as in bankruptcy, the most necessary articles must be left to the debtor. Prosecution for debt and bankruptcy are regulated by federal law.

VIII.—Position of the Confederation with Respect to Foreign Countries.

125. *Summary.*—The separate States or cantons can not act independently; it is a well-understood advantage for them and the population to foster their relations to one another. These relations can be of a political nature and be expressed in alliances with foreign States, or they can be directed to the friendly intercourse among the States by reciprocal ambassadors and consuls as well as by international treaties.

126. *Political situation of Switzerland.*—Switzerland has always followed out the principle of not interfering with the political conditions of other States and strenuously maintaining a policy of neutrality. The neutral position of Switzerland was defined by it, and the great powers of Europe, during the congress at Vienna in 1815, guaranteed it. In consequence of its strict neutrality, the confederation offers an asylum to all political fugitives, who are allowed to remain as long as they do not abuse the privilege.

127. *Ambassadors and consuls.*—For the maintenance of the friendly relations existing between Switzerland and the larger States, as well as for the protection and assistance of Swiss residents, Switzerland sends ambassadors or ministers to Paris, Vienna, Berlin, Rome, and Washington. It sends consuls to all the important cities of the world. Their office is to transact business affairs and counsel and assist their fellow-citizens. On the other hand, foreign countries send ambassadors or ministers to Switzerland; in all its large cities foreign consuls reside. Ambassadors and their personnel enjoy the right of extraterritoriality—that is to say, their judicial relations are the same as in their own country (taxes, legal prosecutions, etc.). Consuls must be recognized by the Government of the country to which they are sent; this recognition is called "exequatur."

128. *Treaties for residence and trade.*—Treaties for residence exist between Switzerland and most other States. In accordance with these, Swiss citizens and the citizens of other States may reside in the respective countries and enjoy the protection of their laws. They can carry on business the same as native citizens, and can not be deprived of these rights without cause.

129. *Treaties on important matters of law.*—It frequently happens that the legal prescriptions in one country might conflict with those of another. It is necessary to establish uniform legal prescriptions, especially for industry, trade intercourse, and legal proceedings. This is accomplished through the so-called international conventions. These have been held to decide upon postal, telegraph, railroad, freight, patent, and art and literary copyright laws. The States which have been represented at these conventions maintain special bureaus, so-called international bureaus, located at Berne.

130. *Treaties referring to import duties.*—States levy a duty on imported goods, partly for revenue and partly to raise the prices of such articles so that home industries may prosper (protective tariff). If the interests of every State were isolated, commerce would not only be prevented but be rendered practically impossible. Therefore, States endeavor to derive advantage from mutual concessions. Switzerland has signed treaties of this kind with all neighboring States.

131. *Extradition treaties.*—Criminals often try to evade justice by taking refuge in other countries. States have, therefore, negotiated treaties for the return of such fugitives. Political offenses are not included in these treaties; they are those which are not committed from motives of gain and the like, but to give expression to political views. Switzerland and most other countries do not return a citizen who has committed a crime in another country, but themselves inflict the punishment.

THE TEACHING OF CIVICS IN FRANCE.

In the French elementary schools "civil government" is a subject of study, and the topics to be treated are prescribed explicitly. The following outline is submitted as showing what is required. Children of the age of 7 to 9 years are made acquainted, by means of informal explanations in connection with reading, with words suggesting national ideas, as citizen, soldier, army, native country, community, department, nation, law, justice, public force. Children from 9 to 11 years of age are given general notions of the organization of the State, the duties and rights of citizens, compulsory education, military service, taxation, universal suffrage, the community, the mayor and the municipal council, the department, the prefect and the general council, the State, legislative, executive, and judicial power. During the last two years of the course the teacher discusses more thoroughly the political, administrative, and judicial organization of France; the constitution; the President of the Republic; the Senate; the Chamber of Deputies; the law; departmental and communal administration; the different authorities; civil and penal courts; the different degrees of instruction; public force; the army.

In the superior elementary schools this course is extended to include elementary ideas of political economy: Elementary notions of civil law (the family and the civil state, the laws of property, inheritances, contracts) and of commercial law (merchants, commercial societies, bills of exchange, orders, checks); production of wealth; factors in production (material, labor, economy, capital, property); circulation and distribution of wealth (exchange, money, credit, wages, and interest); luxury; expenses of the State; taxes and the annual appropriations.

In order to more clearly define the subject, particularly to show the terminology employed, an English version of a little text-book is here inserted which is used in the lower schools of France. Its author is M. S. A. Nonus, inspector of elementary schools and officer of public instruction in France.

I.—Society—The State.

Man is a social being. The foundation of society is the family.

Several families living in the same neighborhood form a commune; several communes, a canton; several cantons, an arrondissement, and several arrondissements, a department—and the departments, collectively, form the State.

A State is a territory the inhabitants of which obey the same laws and recognize the same power, the same authorities—or, in a word, are under the same government.

II.—Benefits of Society.

"One man can do very little alone; uniting his efforts to those of others, he can accomplish great results."

We are indebted to society for—

(1) Material advantages. We enjoy not only the fruit of our own labor, but also that of the labor of others.

(2) Intellectual advantages. Were it not for society, man would remain in a state of ignorance, as upon each individual would be entailed the nearly impossible task of starting again at the very beginning of all that has been done. As it is, each profits by the efforts of all. Generations bequeath an intellectual inheritance to one another. This constitutes progress.

(3) Moral advantages. Isolated from his fellow-creatures, man would become fierce, savage, and wicked. In contact with others, his manners soften and moral progress develops.

III.—Government—Constitution.

Government is the collective powers that administer public authority. The constitution is the fundamental law of a State. It defines the form of government and the political rights of citizens. France is now ruled in accordance with the constitutional laws of 1875.

The principal forms of government are monarchies and republics. In a monarchy, be it a kingdom or an empire, the monarch exercises power as a personal right, transmitted by succession. When his authority is not limited by a constitution, the government is an absolute monarchy. When his authority is defined by a constitution, the government is said to be constitutional.

The word republic means a public thing or affair—the government of all. A government is said to be democratic when the power resides ultimately in the whole people.

Observation: France is a democratic Republic, one and indivisible. Switzerland is a federative Republic.

IV.—Monarchy and Republic—Comparison.

A republic is the only form of government compatible with universal suffrage or national sovereignty. It is preferable to a monarchy because the people conduct their own affairs instead of submitting blindly to a man who is able to place his own interests and those of his dynasty above national interests.

The heir of a good king may be incapable of governing; whereas the president of a republic is always elected from among the most able.

Observation: In a republic men are free citizens, whilst in a monarchy they are but the very humble subjects of the king or emperor.

I.—Race—Nation—People.

A race is composed of the descendants of common ancestors, from whom they inherit certain moral, intellectual, and physical qualities. The Gallic race and the Germanic race, for instance, may be mentioned.

A nation or a people is a body of inhabitants of the same country, speaking the same language, and having common interests and the same history.

The words French nation, French people, mean all the inhabitants of France, without distinction of race.

II.—French Citizenship.

A French citizen is one who enjoys political rights in France. To enjoy these rights one must have attained to the age of 21 years, be French born, or have become naturalized.

The following forfeit their political rights:

(1) Those who have suffered penal retribution and ignominious punishment—or the latter only.

(2) Those who have been deprived by law of their right to vote and election. Consult the table of those incapacitated to vote, published by the minister of the interior, July 12, 1874. Also, consult Municipal Life, by S. A. Nonus.

Observation: Whoever does not love France, or commits wrong, should be struck off the list of French citizens.

III.—How one Becomes and Ceases to Be a French Citizen.

The following become French citizens:

(1) The foreigner who marries a Frenchman.

(2) Foreigners who have been naturalized.

On request for naturalization, it is enacted by law, after proper inquiry.

The following are no longer French citizens:

(1) The Frenchman who becomes naturalized in a foreign country.

(2) The Frenchman who, without authority from the Government, enters a foreign military service or accepts public office under a foreign government.

Observation: Foreigners should not receive the title of French citizen unless they are truly deserving.

IV.—Rights Guaranteed to All Citizens.

French citizens enjoy a certain number of rights, defined in the article on rights of man and of citizens. These rights may be divided into three categories:

(1) Individual rights, guaranteed to all men, women, and children.

(2) Civil rights, allowed to men and women of age.

(3) Political rights, allowed only to men of age.

Refer to the lesson on the Rights of Citizens. Notice that the rights to be discussed in the next lesson are the counterpart of the duties spoken of in the lessons on morals.

Observation: Let us be proud of being French citizens and vigilantly guard our rights.

First. The right of property: The right of property is the right to possess what one has acquired by work, inheritance, or donation. The owner may dispose of his effects as of his person. "Property is an inviolable and sacred right, of which one can be deprived only when public necessity, legally defined, so requires, and then only under the condition of a just and previous indemnity." This is called renunciation for the cause of public necessity.

Reflection: Every citizen should respect the property of others.

Second. The right of vote—Universal suffrage: Civic or political rights are the rights granted to citizens of age in their relations with the State; as, the right to serve as a witness; the right of oath: the right to vote.

Universal suffrage is the right common to all French citizens to take part by vote in the election of those appointed to govern or represent the nation, department, arrondissement, or commune. To be able to vote, one must be 21 years of age and enjoy his civic rights.

Refer to lesson 4. A tax must be voted by the representatives of the nation. A citizen need not pay even a centime unless the tax has been legally voted.

Reflections: The right to vote imposes the duty of knowledge. Since all profit

by public expenditure, it is just that each should contribute to it according to his means.

Third. National sovereignty: The principle of all sovereignty rests essentially in the nation. No individual nor body of men can exercise authority unless it has been so decreed.

The French nation is free and is its own mistress.

Sovereignty is exercised by the right of vote, that is to say, the right to nominate representatives or mandataries for the different elective officers, as deputies, senators, and others.

Reflection: All power is vested in the people; they alone are sovereigns.

I—Duties Imposed on all Citizens.

Refer to the instruction on morals. Pupils should review this lesson.[1]

II—The Obligation of Education.

Law of March 28, 1882. Primary instruction is compulsory for children of both sexes aged from 6 to 13 years. Children should either attend primary or secondary educational institutions, public or private schools, or be taught at home, by the father of the family himself or some other competent person. In pursuance of the obligation, the law has established free primary schools.

The father of the family is free to have his children instructed as he chooses, but the law will not permit them to grow up in ignorance.

In each commune commissioners of education are appointed to superintend and encourage attendance at schools. Penalties are imposed upon negligent parents. Children instructed at home undergo an examination at the end and at the beginning of the scholastic year.

Reflection: Parents have no more right to deprive their children of education than of bread.

III.—Organization of Public Instruction.

In France there are three degrees of public instruction.

(1) Primary instruction: The classes of primary schools are infant schools for children 2 to 6 years of age, infant classes for children 4 to 7 years of age, elementary primary schools, complementary classes, and superior primary or high schools.

(2) Secondary instruction: The classes of secondary schools are lyceums and colleges, with secondary and secondary-modern courses.

(3) Superior instruction: The classes of higher schools are the faculties of literature, sciences, law, medicine, and pharmacy. They also comprise what are known as special schools, as the Military School of Saint-Cyr, the Polytechnic School, and the National University.

Reflection: Owing to the beautiful institution of the scholarship funds, or bourses, a child of the poorest workman can, by intelligence and courage, pursue the highest courses of study.

IV.—Functionaries of Private Instruction.

(*a*) Instruction: Infant schools are under directresses and assistant directresses; elementary primary schools, under instructors and instructresses, full titled, and those not yet graduated; high schools, under directors, professors, and assistants—male and female.

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[1] The text here offered in translation is the second part of Professor Nonus' text-book. The first part contains the matter for instruction in morals or ethics. It is the first part (here omitted) to which the author refers from time to time.

(*b*) Superintendence and inspection: Superintendents of schools are as follows: Commissioners of cantons, commissioners of inspection, inspectresses of infant schools, primary inspectors, academy inspectors, the rector, inspectors-general, inspectresses-general for infant schools.

The prefect, by advice of the academy inspector, appoints the full-titled teachers, male and female. He presides over the departmental counsel occupied with affairs relative to primary instruction in the departments.

Reflection: The functionaries of primary instruction are well-instructed persons devoted to children.

MILITARY SERVICE.

I.—Necessity of this Service.

Though an evil, war is sometimes necessary. Should France be attacked, it must be defended; but we can not defend it efficaciously merely by taking a gun in hand and marching against the enemy. We must be prepared by military service. As military service has been constituted for the defense of our common mother, it is just that all Frenchmen should be obliged to serve. To serve one's country is not only an obligation, but it is also an honor, and no individual punished for any dishonorable act is allowed to serve in the French army.

Reflections: For a successful defense of our country, we must be prepared by military service. A good pupil will certainly be a good citizen and a good soldier.

II.—Enlistment—Board of Inspection.

The following two principles govern the recruitment of the army:

(1) The obligation of military service devolves upon all.

(2) The full term is twenty-five years.

At the beginning of every year the mayors of each commune take a census of the young men who completed the twentieth year of their age the year before. The enlistment takes place in the chief town of every canton at a public meeting presided over by the subprefect.

The board of inspectors is presided over by the prefect or the secretary-general. It likewise meets in the chief town of the canton.

Young men disqualified by any infirmity are exempted from military service. Dispensations are also granted to certain classes of conscripts, but only in time of peace. Those dispensed are obliged to pay a military tax.

Reflection: It is an honor to serve our country.

III.—The Active Army—Reserves—The Territorial Army—Auxiliary Agencies—The Marine—Military Decorations.

Every Frenchman enlisted serves successively in the active army for three years, the reserves of the active army for ten years, the territorial army for six years, and the reserves for the territorial army for six years. The term of service begins with the 1st of November in the year of enlistment.

The French army consists of (1) infantry, (2) cavalry, (3) artillery, (4) engineer corps; and the auxiliary service is attached to this main body, as (*a*) quartermaster's department, (*b*) medical service and ambulances.

The navy is recruited from the naval conscriptions, by volunteers, or from the first members of the contingent.

The military decorations are (1) the military medal, (2) the Legion of Honor, (3) commemorative medals.

Reflection: Formerly the nation had an army; now the whole nation is armed.

IV.—Military Discipline—Infractors.

Discipline is immediate voluntary obedience to the orders of superiors, who command only what the laws and regulations prescribe. Discipline is one of the greatest forces of the army.

Courts-martial are special tribunals held for the judgment of crimes and misdemeanors committed by any member of the military organization. A court-martial consists of members of the army. It is composed of six officers and one subordinate officer.

An infractor is one who evades the law of recruitment; a deserter is one who leaves his regiment without permission. Both are punished by law.

Reflection: Military discipline is severe, but it is the duty of a soldier to submit to it for the love of his country.

TAXES.

I.—Necessity of Taxes—Direct and Indirect Taxes.

(Refer to the duties to our country, and the right to vote—taxes.)

Taxes are the contributions of every citizen toward the expenses of State, department, or commune for public services. The army, the marine, public works, public institutions, and so on, are the public services for which the larger part of the taxes is spent. All these services are necessary, even indispensable, and they entail enormous expenditures; hence the necessity for taxes.

There are two kinds of taxes, direct and indirect taxes.

The taxes on land, personal property and chattels, the tax on doors and windows, the tax on patents, the military tax, the taxes on horses and carriages as articles of luxury, on wheels, billiards, etc., are direct taxes.

The principal indirect taxes are those on drinks, sugar, coffee, etc.

Monopoly is the right reserved by the State for manufacturing and selling certain products, such as tobacco, timber, gunpowder, etc.

There are also duties and city toll.

Reflection: To support the public offices and defray the expenses of administration a common contribution is indispensable. (Consult On the Rights of Man and Citizens.)

II.—Budgets.

The budget is a statement of the probable receipts and expenses of a country, department, commune, or public administration.

The budget of the State is examined and voted each year by the Chambers. The budget of receipts determines the different rates of taxes to be raised. The total direct taxes are divided among the departments and then among the communes.

The budget of the departments is voted by the general council. The budget of communes is voted by the municipal council and approved by the prefect.

Reflection: Colbert was the first to conceive the excellent idea of making out a budget, or yearly statement of receipts and expenses.

III.—Financial Administration.

A taxgatherer collects the direct taxes.

In the chief town of every arrondissement a special collector takes charge of the amounts handed in by the taxgatherers.

The special collectors pass their funds over to the general treasurer of the department.

The financial board and the councils of prefecture verify the accounts of the administrations of State and commune.

The minister of finances is at the head of the financial administration.

Reflection: Order in finances is indispensable to the prosperity of a State.

ADMINISTRATION.

I.—Commune—Municipal Council—Budget.

A commune is the smallest political division of finance. Each commune is governed by a mayor, aided by one or more assistants and a municipal council.

Municipal councils, the number of which varies from 10 to 36 according to population, are elected by ballot for four years. They must be 25 years old. They meet in ordinary session four times a year; but extraordinary sessions may be convened.

The municipal council nominates the mayor and assistants. It considers all affairs of interest to the commune and nominates one or more senators. It votes the budget of the commune. "The expenditures of the commune include principally the expenses of communal administration, the maintenance of roads, public buildings, and loans." (Ch. Dupuy.)

Reflection: The administration of the commune is not independent; it is under the authority of the prefects, agents of the central power.

II.—Mayors and Assistants.

The mayor is the first magistrate of the commune. In case of absence or hindrance, his place is filled by the first assistant or any other. In large cities the mayor can delegate his authority to the assistants for the exercise of a number of municipal functions.

The power of the mayor is extensive. He is a civil officer and chief of the municipal police force. He is the agent of the executive power and executes the decisions of the municipal council. He proposes the budget and orders the expenses. He nominates a certain number of municipal officers, and represents the commune in its affairs of interest. He frames resolutions on subjects pertaining to his administration.

Reflection: The mayor is at the same time an officer of the commune and a representative of the State.

III.—Arrondissement—Department—Subprefect—Prefect—Council of Prefecture.

An arrondissement is governed by a subprefect.

The subprefect serves as intermediary between the prefect and mayors. He rules the administrative affairs of the arrondissement and presides at enlistments, etc.

A department is governed by a prefect, who is at the same time the agent of the Government, the representative of the department, and the warden of the communes.

As agent of the Government, he superintends the execution of the laws, nominates certain officers, frames resolutions, etc.

As administrator of the department, he executes the decisions of the general council, prepares the departmental budget, etc.

As warden of the communes, he approves the budget, controls the expenses, examines contracts of purchases and sales, constructions, etc.

The council of prefecture is an administrative tribunal. It examines the accounts of communes and charitable institutions, the income of which can not exceed 30,000 francs. It judges disagreements of communes, decides municipal elections, etc.

Reflection: France has been divided into departments since 1790. The administration of departments is based on that of the State.

IV.—Council of the Arrondissement—General Council.

The council of the arrondissement is composed of as many members as there are cantons in the arrondissement, though they must number at least nine. It meets twice a year. It distributes among the communes the direct taxes imposed on the arrondissement by the general council, advises the creation of markets and market places, decides questions of local interest, etc.

The general council is composed of as many members as there are cantons in the department. The councilors are elected for six years, though half are changed every three years. The general council considers all affairs concerning the department. It advises, by request, communal affairs and the councils of arrondissement, and issues opinions on all questions of interest to the department. Members of the general council are senatorial electors. To represent it during sessions and to regulate current affairs, the general council elects from among its members a commission entitled "departmental commission," which meets at least once a month.

Reflection: The general council is, so to speak, the municipal council of the department.

I.—The Constitution—Public Powers.

The public powers are organized as follows:

(1) The legislative power, vested in the Chamber of Deputies and in the Senate.

(2) The executive power, possessed by the President of the Republic and the ministers.

(3) The judiciary power, whose sphere it is to punish violations of the laws and to decide controversies. This power is vested in the courts.

These three great powers are distinct from one another and can not be in the hands of one person. This is what is known as the separation of the powers.

Reflection: The separation of the powers is the guaranty of the liberty of citizens.

II.—Legislative Powers.

1. *The Senate.*—The Senate is composed of 300 members. No Frenchman can be a senator unless he is at least 40 years old and enjoys civil and political rights.

Senators are elected by ballot and by universal or restricted suffrage. The senatorial electors are as follows:

(1) The deputies of the departments.

(2) Members of the general council and councils of arrondissements.

(3) Delegates of municipal councils.

The voting takes place in the chief town of the department under the president of the civil court as presiding officer. Senators are elected for nine years. One-third of this number is changed every three years.

The Senate, together with the Chamber of Deputies, has the initiative of laws. Financial laws are always first proposed in the Chamber of Deputies.

The Senate can constitute a supreme court to judge either the President or the ministers, or to condemn any attack against the security of the State.

By advice of the Senate the President can adjourn the Chamber of Deputies.

2. *The Chamber of Deputies.*—Deputies are elected by universal suffrage and individual ballot.

To be a deputy one must be a French citizen, 25 years of age and enjoying civil and political rights. Deputies are elected for four years. Each arrondissement elects at least one deputy. The actual number is 580.

From a legislative point of view, the Chamber of Deputies has the same rights as the Senate. It has even a priority with financial laws.

The Chambers meet every year on the second Tuesday in January. They must be in session at least five months every year.

Reflection: Deputies and senators are officers of the citizens. It is their duty to work in unison for the nation's prosperity.

III.—The Executive Power.

The executive power is vested in the President and in the ministers.

The President of the Republic is the head of the executive power—the first magistrate of France.

The President is elected by the absolute majority of votes by the Senate and Chamber of Deputies united, at Versailles, in national assembly. He is nominated for seven years, and can be reelected.

The President can be impeached for high treason only. The Chamber of Deputies alone has the right to accuse, and the Senate the right to judge him.

Reflection: M. Felix Faure has been President since January 17, 1895.

IV.—Duties of the President.

The President convenes the Chambers and closes their sessions. He communicates with them by message.

The President promulgates the laws voted by the Chambers, and assures their execution. He has the right to make peace. Amnesties can not be granted but by a law. He controls the armed force, but can not declare war without the previous consent of both Chambers. He appoints all civil and military officers, and presides at all national solemnities. He represents France, and negotiates treaties with foreign powers, but under condition of submitting them to the consideration of the Chambers. Finally, he receives ambassadors.

Reflections: The President personifies France; to be wanting in respect to him would be an insult to France itself.

I.—The Executive Power (continuation)—Ministers.

The ministers are the heads of the great public departments of administration. They are chosen by the Presidents, ordinarily from among the members of both Chambers. They have a right to the floor of the Chambers, and should receive attention when they request a hearing. They are jointly and severally responsible to the Chambers for the general policy of the Government, and individually for their personal acts.

There are eleven ministers.

MINISTER OF THE INTERIOR.

The special duties of the minister of the interior are to superintend the interior administration of France, the police, elections, public assistance, communal administration, etc. Under him are the prefects, subprefects, mayors, etc.

MINISTER OF FOREIGN AFFAIRS.

The minister of foreign affairs has charge of the political and commercial relations of France with foreign nations. Under him are ambassadors, ministers plenipotentiary, chargé d'affaires, consuls, etc.

MINISTER OF FINANCE.

The minister of finance superintends the collection of taxes, the total amount of which constitutes what is called the treasury, and regularly pays the expenses voted by the Chambers. He prepares and presents the state budget. (Refer to the lesson on financial administration.)

MINISTER OF WAR.

The minister of war is the commander-in-chief of the army. Recruitment and military instruction of the different soldiers are committed to him. He directs all that relates to the defense of our country, fortifications, distribution of troops, etc.

MINISTER OF THE MARINE.

The minister of the marine is at the head of the navy. He superintends the recruitment of the marine, the maintenance of arsenals, the construction of war vessels, the defense of coasts, ports, harbors, etc.

MINISTER OF JUSTICE.

The minister of justice, also called "keeper of the seals," is the head of judiciary power. All judicial officers are under his authority.

MINISTER OF PUBLIC INSTRUCTION AND OF THE FINE ARTS.

The minister of public instruction is at the head of all State educational institutions. All the institutions and functionaries of this minister are comprehended in the term "university," and he is also called "head master of the university."

The duties of the minister of public instruction pertain to what relates to the fine arts, museums, theaters, historic monuments, etc.

MINISTER OF PUBLIC WORKS.

The minister of public works superintends the building and maintenance of works of public interest, such as roads, canals, dikes, etc. Under him are engineers, keepers of bridges and causeways, overseers of roads, etc.

MINISTER OF INDUSTRY AND COMMERCE.

It is the duty of this minister to encourage and favor commerce and industry. He negotiates commercial treaties with other nations and superintends manufactures. The central school, the conservatory of arts and trades, art and trade schools, and commercial high schools are under his direction.

The mail and telegraph services are attached to the province of this minister.

MINISTER OF AGRICULTURE.

It is the duty of this minister to encourage and protect the interests of agriculture, one of the principal sources of a country's wealth. The minister of agriculture superintends the school of agriculture in Paris, national agricultural schools, farm schools, veterinary schools, forest culture.

MINISTER OF COLONIES.

This minister directs all colonial affairs—administration, production, etc.

WORSHIP.

The minister of worship is sometimes attached to the province of the minister of public instruction and sometimes to that of the minister of justice or of the interior.

II.—JUDICIARY POWER.

Judiciary power is vested in the courts. There are two principal kinds of courts—those administering civil justice and those administering penal or criminal justice.

JUSTICE OF THE PEACE.

The justice of the peace is the first degree of judiciary power. There is a justice of the peace in the chief town of every canton.

The justice of the peace conciliates. In civil matters he judges without appeal

in cases where the value does not exceed 100 francs. He alone, in penal matters, forms a simple police court; he can impose a fine of from 1 to 15 francs and imprisonment for two to five days. The justice of the peace is a movable office.

TRIBUNAL OF THE FIRST INSTANCE.

There is a court of the first instance in the chief town of every arrondissement.

In civil matters it judges, by appeal, affairs judged by justices of the peace, and also those which are too important to be judged by that magistrate.

As a court of correction, it judges misdemeanors punishable by more than a fine of 15 francs or five days' imprisonment.

COURT OF APPEALS.

There are twenty-five courts of appeals. They judge civil and criminal cases already judged by courts of the first instance.

COURT OF ASSIZES.

There is one court of assizes in every department. They hold general sessions. In the court of assizes the judges do not decide whether the accused be guilty or not; this duty belongs to the jury composed of twelve citizens, called jurymen.

The magistrates who, together with the jury, form the court of assizes pronounce acquittal or sentence after the verdict of the jury. Decisions of the court of assizes can be appealed only to the court of cassation, and only for an error of form.

COURT OF CASSATION.

The court of cassation is the supreme court to which decisions of the courts of appeals and the courts of assizes may be appealed. It meets in Paris.

The court of cassation does not judge; it confirms or breaks decisions; that is to say, annuls those that have been rendered contrary to law or prescribed form. If a judgment is broken, the case is referred to another court of appeals, or another court of assizes, to be reinvestigated and judged anew.

III.—PUBLIC MINISTRY.

Attached to every court of the first instance is a procurator, with one or more substitutes.

A procurator-general, attorneys-general, and substitutes of the procurator-general are connected with every court of appeals and the court of cassation. The procurators and their substitutes form what is called the parquet of a court of justice.

The office filled by these magistrates is called public ministry. In the name of society the procurator traces the criminal, brings him before the court, and out of public interests demands his punishment.

The members of the parquet change places, and are called the standing magistracy. The judges do not change places, and constitute the sealed magistracy.

Besides the courts mentioned, there are special tribunals, as commercial tribunals, seaport councils, councils of war, councils of prefecture, and State councils.

Reflection: Judges have a delicate mission to fulfill. They should be independent and impartial.

THE TEACHING OF CIVICS IN ENGLAND.

In the recent development of evening schools in England special stress has been laid upon instruction in citizenship. An elaborate course[1] upon the life and duties of the citizen has been included in

[1] The course will be found in full in the Commissioner's Report for 1893–94, Vol. 1.

the regulations for evening schools. Text-books on the subject have multiplied under the impetus thus given, and it has become a prominent theme of public discussion. One of the most valuable contributions to the literature of the subject is a pamphlet from the pen of Prof. Patrick Geddes, of Edinburgh, who not only attempts to awaken the civic sense in his countrymen, but sets them the example of earnest practical efforts for the development of municipal life. In a paper presented recently before the "Cooperative Wholesale Societies,"[1] Professor Geddes discusses the place of history and geography in education for economics and citizenship. The paper is extremely interesting and suggestive. The following extracts are pertinent to the subject.

He first discusses the relations of geography and history to education for economics and citizenship, saying:

To too many people, I fear, to speak of the study of geography is to recall those weary lists of towns and counties, those wretched enumerations of rivers and mountains, straits and gulfs, which they learned, or failed to learn, by rote at school, while similarly history may but stand for an even more dreary catalogue of names and dates. Even if we were somewhat better taught, we have done with school subjects and have no time to pore over those huge atlases of geography or read those innumerable volumes of history in our reference library. Economics is what now interests us; that deals with actual problems of capital and labor, of cooperation or socialism. We can not any longer, with the classical economists, shut off moral considerations as irrelevant, since it has now become more or less evident that the continued progress, perhaps even the continued existence, of our great modern industrial communities requires also some education in citizenship. But this education, when it gets beyond mere vague aspiration and exhortation, seems restricted to the generalities of conduct common to all civilized communities. It is not yet related to economics as a science; for what after all can it really tell or advise to laborers and capitalists? Still less has it any definite relation to history and geography. Hence, while there is no doubt that an increasing proportion of minds desire and even profit by the often excellent lay preaching of the civic moralist, there is no small danger of his failing in direct result, much as ordinary preaching tends to do, and for the same reason—the insufficiently clear relation of its general ideals to the particular details of daily life and duty; and hence, excellent as may be Mr. Acland's addition of a course upon the "Life and duties of the citizen" to the new educational code for evening schools, it is still seriously to be doubted whether the extra schoolbook which he is thus adding to the multifarious confusion of that traveling library which our children take daily upon their shoulders is as yet adapted to mean much more to them than did the edifying compilation of older mold to which too many of us still look back as of such memorable wearisomeness. * * *

Though thus so far from sharing the current optimism as to the new movement of civic education, I am not proposing to go back to the old state of things, but to go forward toward a better one. I do not propose to have any finished solution to the educational difficulty, even if there were ever very much demand for remedies to the body politic before it feels the disease, much less when it has not even recognized the possibility of one. * * * Even if we can not reform the world from our existing school machinery, nor even reform the school from our ideals of a better world, we may help each forward a step here and a step there.

[1] Reprinted in pamphlet form from the society's annual.

In another chapter of the pamphlet Professor Geddes discusses the question, What may be done by individuals in home life and how may they come in touch with the world of higher education. He says:

The children are coming home from school to prepare their lessons—so much history, so much geography, and now also so much "citizenship." We men have our newspapers, our cooperative annual, and what not, our economic and political interests generally. Our wives and sisters have their domestic cares, their keen personal interests, their wide and warm, if vague, sympathies. Can we not in some way bring all these divergent interests together? Each at present, must it not be frankly admitted, rather bores the other, however strong be the bond of natural affection.

The men can not but weary of the women's talk and the women of the men's reading, while the children understand neither; and if either help the children with their lessons it is surely more as a duty than a pleasure and with a keen sense of thankfulness that one has not one's self to practice this rule or pass that examination. No real connection of these different mental interests ever occurs to most people as possible, and so each of us goes on in his old way and returns to his own world of ideas and culture—for the child, the school; for the woman, perhaps the church; for the man, his club, committee, or reading room; and the home thus gradually dissolves until too often we reach the all but complete disintegration too common in the Parisian household. Here, however, at length comes in the essential point and thesis of the present paper—that all these apparently distinct studies and interests are but the scattered elements of what should be a well-knit unity, toward weaving which we may find at once a useful start and stimulus in this new course of education in citizenship. * * *

No intelligent man but may at any rate now and then help his son over his difficulties with the text-book of citizenship and put more meaning into those general accounts of Parliament and ministry, of municipal cooperation or poor rate, of army or civil service, which the new subject requires, from his own experience or reading. And having thus made a beginning as a teacher, he will soon begin to reap the reward of every true one—that of constantly finding out where his own knowledge is deficient and of every now and then awakening to see even the most familiar fact from some fresh point of view.

The author then advises the use of appropriate storybooks, saying:

I think it by no means irrelevant to this discussion of geography and history for economics and citizenship, but possibly reassuring to some parent, suggestive to some teacher, at any rate encouraging to some schoolboy here and there, to testify (as I dare say many others might also do), first, that I now see I got no such real glimpse either to the concrete realities of geography or of the elementary realities of economics at school, nor even until I had wandered through a dozen universities, as I got from these simple coral island and fur-trading stories of Ballantyne's; secondly, that such public and civic feelings as I may now have to go upon were first awakened into life and action not by the abstract moralities nor the historical and statistical facts, of which I got my full share, but by Ballantyne's Lifeboat and a boyish attempt to help the "National Lifeboat Association," for which that book so strongly pleads; thirdly, after seven or eight years' responsibilities in the organization of historical studies and a good deal of personal work, particularly at the dry and unimaginative task of compiling all known dates, reigns, battles, and all the rest of it into an historical atlas, or rather chart, I have heard of no other introductory guide to history who can replace Sir Walter.

Since public libraries were opened we have constantly had lamentations over the decline of serious reading, evidenced by the high proportion of "fiction" to "substantial works," of mere "novel reading" to "solid reading." The obvious

elements of truth in this criticism I need not insult anyone by pointing out, but there is more need to suggest that he may as profitably think out the fully as large element of error in it, the still larger elements of error in the remedies commonly proposed. Though personally a reader of books whose solidity reaches what most of even these most serious people consider the most utter and intolerable dryness and a writer whose most imaginative flights have been confined within the limits of the Encyclopædia Britannica and its congeners, I am more and more convinced that we serious people have been wrong and that the growing predominance of the literature of imagination and feeling over the literature of pure intellect is perhaps the most hopeful sign of the times. But most of this fiction is rubbish, say you? No, not most of what people read most as distinguished from what they only look at, sample, dip into, and skim. The reviewer helps the educated classes, and, like the tea taster, does the sampling for us; but the general reader is only learning to use the often excellent reviewing of the leading newspapers, and it will not be until the halfpenny evening newspapers take up the same work and do it as regularly and as well, and until some other of the bits of social organization half suggested above have come into full activity, that we can reasonably expect much improvement from the great body of younger and simpler readers.

Weed out, then, by all means, the inferior literature of imagination and feeling, but there will still remain much of what the Puritan within us most dislikes—that literature of inferior or debased imagination and inferior or debased feeling which yet fascinates the reader by its literary power. Here, of course, a finer criticism may come in, but still hardly a reader will be gained for the "solid" books. What, then, is the remedy? It is to make these solid, dry bones live; and whoever has the open secret of doing this will not always lack readers. The natural sciences are one to the learner. The astronomers and geologists have largely succeeded—witness Proctor, Lockyer, or Ball, Hugh Miller, Lyell, or the brothers Geikie; and at times, too, the naturalists, from Buffon and Huxley, or more lately Arthur Thomson and Professor Drummond. In this way, for instance, the very word "evolution" is coming to have, with its vastly deepening intellectual meaning, a corresponding infinitude of imagining possibilities, and with these of moods of feeling, from blackest pessimism to inextinguishable hope and brightening joy, for though still a few years ago a byword to many and at best a zoological and botanical theory to the few, it is now seen and felt to be the name of the great "Drama of the Universe."

Of this drama we see each man is, as in a dream, both actor and spectator. He is gradually awakening to the spectacle of the natural world around him, and speaks of his scanty but increasing store of ideas as the "Progress of natural science." He utilizes and modifies the world to his changing needs or impulses, and calls the result "Progress of industry." But it is his fellows that most interest him, and nature seems but the background—the scenery and stage—for the great spectacle of the human world. To-day, to-morrow, yesterday, these are what primarily interest us, and hence we rightly buy our daily newspapers as the bill and abstract of the play, or rather the day's act. But to understand the present day we need to survey and condense the records of many past ones; that is "History." Again, we can understand neither past nor present acts without knowing something of the scenes which condition them, and this is "Geography." But we would not choose to listen to loose, haphazard fragments of the play, and these without seeing or at any rate thinking of the scenes where they were laid. Still less would we try to learn by rote a mere catalogue of pieces of scene without caring or even knowing what part of the play they belong to. Yet this has been for long enough the "history" and the "geography" of the schools, and, though both are improving and better teachers are scattered everywhere, it is not too much to say that their needed reorganization and reunion is scarcely more than begun.

CHAPTER VIII.

EDUCATION IN GREECE.

By DANIEL QUINN, Ph. D.

INTRODUCTION.

I first became interested in the Greeks of to-day because I regarded them as descended from those old Hellenes whose culture and civilization, as classic and as Christian, are the foundation that lies beneath all modern progress.

But without losing my intense love for classic Hellenism, I soon began to admire the modern Greeks not so much on account of their historic ancestors as on account of their own sterling virtues and high natural intelligence.

I feel that I now admire the ancient Greeks even more than I did in the enthusiastic days of my youth; but I admire them as well for having produced the modern Greek, with his noble and determined aspirations, as for having civilized all the rest of Europe.

Of all the phases of contemporary Greek life, their system of education is in some respects least attractive to us, because it is the most modified by foreign influence. Indeed, even a close observer might think that the system is entirely a foreign one. But it is wrong to judge entirely by the appearance of the body what the soul is. The outward form of modern Greek education is German and French in character, but the soul is Hellenic. In the following pages, unfortunately, I portray the outward form rather than the soul; and I give not so much a full picture as the merest sketch—a sketch in some parts clearly delineated, in other parts most imperfectly, but a sketch which I hope to finish year by year into a more presentable picture.

WASHINGTON, D. C., *September 21, 1897.*

VARIOUS AND GRADUAL MODIFICATIONS THAT GREEK EDUCATION AND CULTURE UNDERWENT FROM THE FIFTH CENTURY BEFORE CHRIST DOWN TO THE CHRISTIANIZATION OF THE GREEKS.

When we think of Greece, we usually picture the Greece of classic days—Greece that we became acquainted with when we were boys at school; Greece which in the age of Perikles created itself into a state of society which ever since has been regarded as a model for imitation and for study.

Greece of to-day is far different from the ideal land of our schoolboy dreams, and yet Greece of to-day is so essentially one with Greece of the past that it is impossible to understand modern Greece without knowing classic Greece and the unbroken history of the Greek people from those classic times down to the present century. Here, however, is not the proper place to treat in general of the history of Greece. I merely say that in writing about the condition of education among the modern Greeks it must be taken for granted that the history of the people is quite well

known. I wish also to note the fact that not a few historians of repute recognize the uninterrupted continuity of Greek history through a period of almost thirty centuries, and give an unbroken account of the origin and growth, glories and disgraces, triumphs and falls, of this nation from its first obscure days down to our own age—such historians as Paparrhigopoulos (Κ. Παπαρρηγοπούλου Ἱστορία τοῦ Ἑλληνικοῦ Ἔθνους ἀπὸ τῶν ἀρχαιοτάτων χρόνων μέχρι τῶν καθ' ἡμᾶς. ἐν Ἀθήναις, 1886–87, 5 vols.), Lampros (Ἱστορία τῆς Ἑλλάδος ἀπὸ τῶν ἀρχαιοτάτων χρόνων μέχρι τῆς Βασιλείας τοῦ Οθωνος ὑπὸ Σπυρίδωνος Π. Λάμπρου. ἐν Ἀθήναις, 1886–1892; completed down to the reign of the Empress Eirene), Timayenis (History of Greece from the Earliest Times down to the Present, by T. T. Timayenis, 1883), Wlad. de Brunet de Presle et Alex. Blanchet (La Grèce depuis la conquête romaine jusqu'à nos jours, Paris, 1860), and George Finlay (A History of Greece from its Conquest by the Romans to the Present Time—B. C. 146 to H. D. 1864. Oxford, 1877).

Just as the thorough historian must trace the entire Hellenic stream in order to understand that portion of it which he sees to-day flowing by, so is it also necessary in writing of education in Greece of to-day to look back over the Greek education of the past. However, despite the importance of the history of education in ancient Greece, I shall treat it very briefly. It is already well known. The nearer I approach to our own times the more diffuse do I intend to become. But before beginning it will be well to give a brief survey of the history of the Greeks.

The history of ancient Greece is the history of a number of independent States. In classic times, and even later, Greece could no more be regarded as a unit well compacted than can Europe of to-day be regarded as such. Sparta, for instance, and Athens, were just as independent of each other, and just as jealous, as are France and Germany. And just as France and Germany could unite only against some common enemy that threatened to destroy both, so could such ancient States as Athens, Sparta, Argos, Thebes, unite only when all were equally threatened with destruction by some external foe, like the Persians. But just as Europe and America of to-day may be regarded as a unit distinct and different in civilization from the civilization of Asia or the barbarous or semibarbarous civilizations of other countries, so could Greece in those classic days be regarded as a unit against the rest of the world. As long as Greece remained independent, she thus continued to be a number of small States, bound together, not as parts of an organized whole, but by the brotherhood of common origin and, occasionally, of common interests.

After Greece lost her independence this lack of unity is not so apparent. This is because Greece as a nation was no longer a factor in the political world, at least until she reappeared in Byzantine form. During her long subjection to foreign power her influence came from her citizens as individuals. As a nation she was powerless. It is only in our present century that Greece, after a resolute and successful struggle for freedom, finally manifested her unity in an outward and enduring manner. For since the London conference of 1830 the Greeks of the mainland and of a number of the islands constitute an independent and solid kingdom.

Since education affects the entire course and all the actions of the individual's life, both as private man and as citizen, and since, again, all the other great institutions of a nation affect the conditions and quality of the education of the individual, it would be necessary, in order to thoroughly comprehend a system of education in vogue among a people to know scientifically and in detail the entire contemporary life and doings of that people. But the history of the Greeks from their submission to the Romans in 146 B. C. down to the establishment of the Eastern or Byzantine Empire, with its center at Constantinopol, in 323, and thence through the middle ages down to the fall of that city in 1453, is not yet more than crudely known to us. Accordingly we can but imperfectly understand its systems of education.

For the sake of orientation, I here recall certain epoch-making events in the long life of the Greeks.

Greece may be said to have been in her highest prosperity and civilization at about the time of the breaking out of the Peloponnesian war in 431 B. C. The disastrous

effects of this war, which lasted almost thirty years, started Athens, then the great center of art and literature and all phases of Greek civilization, on her downward course.

In 338 B. C. Greece lost her independence on the battlefield of Chaeroneia and became a portion of the Kingdom of Makedonia. The Makedonians claimed to be Greeks. If they really were not Greeks, they at least became such in culture and civilization soon after their closer contact with the conquered.

In 323 B. C. Alexander, King of Makedonia and son of the conqueror Philip, died in Babylon, after having brought under his control all of the world that lies between the Euphrates and the Adriatic, the Danube and the deserts of Arabia and Africa. He subjected these various peoples to Greek civilization and Makedonian rule. After his death his vast empire was divided among his generals. Thus a number of smaller kingdoms arose, such as that of the Ptolemies in Egypt, or the Selevkids in Syria, or the Attalids in Pergamon. Each one of these smaller kingdoms became an independent center of Greek life.

Gradually, however, all of these Greek kingdoms fell under the great new power of the West, Rome. But Rome, like Makedonia, on acquiring dominion over the countries of the Greeks, herself became Greek in culture. (Cf. De Literarum Artiumque Liberalium sive Ingenuarum apud Romanos Conditione, by Dr. F. Krause. Hohenstein, 1849.) In 146 B. C. the Romans, after destroying Korinth, reduced all of Greece proper to the condition of a Roman province, as part of Makedonia. And from that time on Rome rapidly spread her rule over all Greek lands.

When, in 323 after Christ, Constantine, feeling that the capital of the great Roman Empire should be situated farther east, selected Byzantion, he and his followers succeeded in keeping this new eastern empire for a time Roman rather than Greek in official language, in court practices, and other externals. Finally, however, the soul prevailed over the body, and Byzantion and its provinces came out in their true nature, an independent kingdom, with Greek language and Greek traditions. The court alone and what directly depended on it remained tinged with a certain Roman coloring. However, the people accepted and willingly kept the name of "Romans."

While Greece as a nation was buried in the Roman Empire Christianity came into existence in Judea, a small nation also subject at that time to Greek culture and to Roman arms. After this new religion had taken first roots in its native country Greeks and Greek-spirited Jews undertook the spreading of it throughout the vast Roman Empire. On this account Christianity, though first taught among a Semitic people, yet is bound up with Hellenism. The new religion accepted the wisdom of the Greeks. The new doctrines were explained in the well-prepared language of Platon and Aristotel. The Christian teachings spread with wonderful rapidity. Its teachers were Hellenists, and the vehicle through which it was presented as a systematic body of doctrine was the Greek language and Greek metaphysics. The great teachers and formulators of the dogmas of Christianity were mostly Greeks.

The new empire of the east, Roman in its name, Greek in its feelings, was Christian in its religion. From the prominent part performed by Greeks in the spreading of religion, the Eastern Empire came in a certain way to regard itself as the great protector and director of Christianity. Thus the earlier councils of the Church were held in that Empire; and thus all the disputes relating to what the true Christian doctrine was in detail arose there. Most of the great heretics as well as most of the great orthodox teachers were of the Eastern Church.

Being a Christian Kingdom, many of the practices that bound the people to their pagan past died out. The gods were forgotten, or rather replaced by saints. The great feasts of pagan worship gave way to the grand pomps of the Christian ritual. In 393 the Olympian games were celebrated for the last time. In 529 the schools at Athens were closed by Justinian. Athens had long since ceased to be the great center of Hellenism. Constantinopol was now the center. The emperors ruled there in a magnificence beyond our knowledge. The gorgeousness of the church almost rivaled that of the state. The patriarch was in one sense as mighty as the Emperor.

But the great Empire had many enemies. Not only were there continually internal dissensions arising from differences in religious beliefs, rivalries of princes and generals, of priests and monks, of various classes of the people at large, but it had many enemies from without. Many a horde of sturdy barbarians looked with hungry eye toward Constantinopol, for Constantinopol was the greatest center of wealth and luxury in the world.

Various tribes of northern wanderers began to come down into the fair provinces of Greece. In the year 262 after Christ the Goths came, burning and plundering as far as to the gates of Athens. These are the Goths that had already defeated the Roman legions, and who later destroyed the Western Empire. But they were repulsed by the Athenians and forced to retreat.

In 395 the Goths stormed down into Greece again. This time their leader was Alarich. They destroyed Elevsis and Athens and other places in north Greece, and, entering the Peloponnesos, they left it a burning waste. In 470 the Vandals were ravaging Greece. In 540 the Slavs came down into the provinces of Greece, and in 588 they came again with the Avars. In 1019 the Bulgarians were defeated at Thermopylæ and at Athens by the Emperor Basileios I. At about this same time the Albanians make their appearance in Greece. In 1040 the Warangs, a Norwegian tribe, under Harald Haardraade, plundered Athens. In 1084 the Normans came down as far as Larissa.

What the ethnological effect of these various invasions was we have not now time to consider in a thorough manner. An opinion set afloat by Fallmerayer in his history of the Peloponnesos (Geschichte der Halbinsel Morea, Stuttgart und Tübingen, 1830–1836) asserted that these various invaders, after entering Greece, ceased to be wanderers and roamers, and settled down in the villages whose Greek inhabitants they had killed, and that therefore the modern inhabitants of Greece are a much mixed race, having almost all kinds of blood in their veins except Hellenic. This novel and fantastic opinion was immediately attacked by Hellenes and Philhellenes on patriotic as well as historic grounds. No one now defends it. These hordes of plunderers found nothing in Greece to entice them to remain there. However, various tribes of Slavs and Albanians did make small settlements here and there in Greece in those days.

Another element that came into Greece was the Wallachian. The Wallachs came peaceably as shepherds and settled in the mountains. In the fifteenth century bands of Wallachians were to be found as far south as the Taygetos Mountains. (See Chalkokondyles, ed. Migne, p. 44.) But the Wallachs are not and never have been numerous in Greece. Of all the foreigners that settled in Greece during the middle ages the Albanians were the most numerous and have left the greatest number of descendants. And yet in all Greece to-day these Albanians do not number more than 100,000. (See La Grèce au point de vue naturel, ethnologique, anthropologique, démographique et médical, par le Dr. Clon Stephanos, Paris, 1884, p. 430.)

These invasions were indeed calamitous to Greece and the Eastern Empire. But a greater misfortune than all of these invasions were the armies of the west, which, starting out as crusaders or under the pretext of being such, often found the rich cities of the Eastern Empire temptations toward plunder too strong to be resisted. The fourth crusade was nothing other than a plundering expedition of brigands, who deliberately went to divide up the Byzantine Empire according to a prearranged plan. In 1204 they got into Constantinopol by treacherous promises and took possession of the city. They held it for fifty-seven years, establishing a Latin kingdom there. They took many of the provinces also, making them princedoms for western knights.

At this time all of Greece proper fell into the hands of the Frankish princes. Greece remained under western control, chiefly French, Genoese, and Venetian, from that time until the Turks gradually got possession of the country after the fall of Constantinopol.

At the end of the fifteenth century nearly all of Greece proper, except certain

mountain holds whose inhabitants were never really subdued, and nearly all of the islands except Krete and Tenos and a few others, were subject to the Turks. So the country remained until 1821, when the revolution broke out, which gloriously ended in bringing back their old independence to a portion of the Greeks. And this portion constitutes the present Kingdom of Hellas.

Απ' τὰ κόκκαλα βγαλμένη
Τῶν Ἑλλήνων τὰ ἱερά,
Καὶ σὰν πρῶτ' ἀνδρειωμένη
Χαῖρ' ὦ χαῖρ' Ἐλευθεριά.

THE PRESENT KINGDOM OF GREECE.

Greece of to-day is a small Kingdom, with its seat of government at Athens, the center of old classic Hellenism. The Kingdom includes all of the peninsula as far north as the Ambracian Gulf and nearly to the Melouna Pass, near Olympos.

In 1830 the London conference recognized the existence of Greece as a free nation. In 1864 England ceded the Ionian Islands, which lie along the west shore of the Peloponnesos and Akarnania to the Kingdom of Greece. In 1880, at the behest of Europe, in the treaty of Berlin, Turkey ceded Thessaly and a small portion of southern Epeiros. The area of the Kingdom is about 24,800 square miles. The present population, according to the census of 1897, is about 2,433,806.

But the yet unredeemed Greeks living outside of this territory regard it as merely a piece of ill fate that they also are not a part of the Kingdom. They look to Athens for light and guidance. In education, as in other respects, they follow the lead of Athens. Accordingly it will be necessary farther on to refer to the condition of education among them.

THE BEGINNINGS OF EDUCATION IN GREECE.

No date marks the first discovery of the need of education. No page of history can precisely indicate to us the time at which the inhabitants of Greece began to be dissatisfied with simply letting their offspring grow up with only such care and crude training as savages give to their children.

That the inhabitants of Greece were a civilized people long before they knew how to read and write seems proven by archæological research. (See the Mycenæan Age, by Dr. Chrestos Tsountas and J. Irving Manatt., Boston, 1897.) The Greeks of the Mykenæan period trained their children, but not in letters. Young boys learned how to do the work that awaited them as men. Every boy learned how to fight and to hunt, to rule or to obey. Many learned some one or more of the different arts, such as architecture, pottery, decorative art, and the making of various instruments and arms, especially from bronze.

But ages before the coming of such education as is inseparably connected with the learning and employing of letters this old civilization had passed away. Indeed, we can not expect to find written thoughts, and therefore literary education, earlier than the beginning of the seventh century B. C. The origin and gradual adoption of the habit of writing in Greece is now quite familiar to us, thanks to the studies of Kirchhoff (Studien zur Geschichte des griechischen Alphabets, vierte Auflage, 1887), Larfeld (Griechische Epigraphik), and others. In the sixth century B. C. the Phœnician alphabet was already common property throughout all Greek lands. True it is that the only documents that have come down to us in writing from that time are inscriptions on stone and bronze, and even they are rare. But the existence of these inscriptions proves that then it was not rare to know how to read and to write.

Since ability to read and write presupposes a certain amount of education, it follows that we can assert the existence of education throughout all Greek countries in the sixth century. But education was developed differently by the different tribes. Education in letters found favor especially with the Ionians. The Ionian

type of education prevailed at Athens. And since it is Athenian education that most of all influenced later Greek education, just as Athenian literature became the model of later Greek literature, we in this chapter on ancient Greek education shall confine ourselves almost exclusively to education at Athens. And since Athenian education was at its height in the fifth century before Christ, most of our descriptions in detail will refer to Athenian education as it was in this fifth century.

EDUCATION IN THE FIFTH CENTURY B. C., ESPECIALLY AT ATHENS.[1]

The most interesting period in the history of Greek education is probably that at which the literature and arts and political institutions of Athens were at their highest. This period may be conventionally regarded as beginning about 480 B. C. and closing about 325 B. C. It is during this period that "higher education" was developed into a system by the philosophers and sophists; but since the work and influence of these men are well known we shall say very little about them, confining ourselves chiefly to observations on such education as boys received before entering on their eighteenth year, when they were enrolled as "ephebi."

Boys began to learn to read when 6 or 7 years old (Platon, Laws, VII, 794 c). Aristotel, in his Politika, says that up to the seventh year the boy should be under the care of his nurse. The Athenians were very careful to provide proper persons to take care of children. Quintilian tells us (I, 1, 4) that the celebrated stoic philosopher wrote a treatise on this subject, explaining why persons to whose charge children were intrusted should be cultured and educated and in the habit of speaking the Attic dialect correctly and without foreign pronunciation or foreign idioms, so that from the very beginning the child might learn such language as he later would use and hear in the the ekklesia and the agora.

From Philostratos we learn that these nurses used to delight in teaching little children by telling them fables from Æsopos about the mouse and the weasel, and the fox and the wolf, etc.; also that they used to tell them of the triumphs of their father or their older brothers in the debates in the public assembly, or in war, or in the athletic games (Philostrat. vit. Apoll. Tyan., V, 14). They also used to tell them the beautiful myths that served instead of past history to the Greeks. So that even in those days "nursery tales" (*τιτθῶν μῦθοι*) were as much of an institution as they used to be with us (Hipp. maj., p. 286).

When in his sixth or seventh year the boy went to school, his first teacher was the so-called *γραμματιστής* or *γραμματοδιδάσκαλος*, or simply *διδάσκαλος*. This teacher usually kept his school within doors, often, however, in the open portico of some

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[1] See Herm. Corringii, De antiquitatibus academicis dissertationes. Helmst. 1651. Ed. secunda, 1674, recogn. Chr. A. Heumannus, Gotting., 1739.

M. Norberg, De educatione puerili apud Spartanos. Lond., 1796.

Adolph Cramer, De educatione puerorum apud Athenienses. Marburg, 1833.

Fr. Cramer, Geschichte der Erziehung und des Unterrichts im Alterthum. Elberfeld, 1834–1836.

Anton van der Bach, De Institutione veterum Græcorum scholastica. Bonn, 1841.

C. Martha, L'Éducation des femmes dans la Grèce ancienne (Rev. Contemp., 1857, IV, pp. 260 ff.).

L. Grasberger, Erziehung und Unterricht im klassichen Alterthum, 1864–1875.

Dr. E. Zeller, Ueber die Wissenschaftlichen Unterricht bei den Griechen. (Rede beim Antritt des Rectorats.) Berlin, 1876.

Paul Girard, L'Éducation Athénienne au cinquième et quatrième siècle avant Jésus-Christ. 2 ed. Paris, 1891.

J. P. Mahaffy, Old Greek education, 1882.

The Education of the Greek People and its Influence on Civilization, by Thomas Davidson. New York, 1894.

Education in Ancient Greece, by Prof. Charles G. Herbermann, in the American Catholic Quarterly Review, October, 1895, pp. 766–806.

public edifice, or at times in the open air under a tree or in some quiet corner. In the Anthology (XI, p. 437) is an epigram which reads—

Αἰάζω Διότιμον ὃς ἐν πέτραισι κάθηται
γαργαρέων παισὶν βῆτα καὶ ἄλφα λέγων;

that is, "I pity Diotimos, who sits among the rocks and drills the boys in the alphabet."

Although the State may have desired that all boys attend school, yet it did not supply buildings for that purpose, and as a rule did not pay the teachers' salaries. Only after the times of Alexander do we find provision in Athens for supporting teachers. All schools were under private management. They naturally varied much in efficiency of teachers, in equipment, and in the social standing of the families that sent their children to the schools. One can easily imagine an Athenian school presided over by one teacher whose only book was a collection of excerpts from Homer, and his only other material equipment one stool, one waxen tablet, and one harp. But there were other schools with a number of teachers and with good equipment. Such a school does Demosthenes describe (On the Crown, 258), referring to the youthful days of his antagonist, Æschines, whose father was a school-teacher.

In some of these schools the number of pupils was very large. Herodotos (VI, 27), for instance, mentions a school of 120 boys in the town of Chios in 494 B. C. The roof of the school fell in and all the boys were killed except one. The school of Stratonikos, the music teacher, will serve as an example of a small school. The room in which he held school was adorned by the statues of the nine muses and Apollon. He had but two pupils, but when asked, "How many have you in your school?" replied, "Twelve, for the gods are with me" (*δώδεκα συν θεοῖς*).

On an ancient vase, the so-called Duris vase, we find a school scene painted. Some of the pupils are engaged in reading, others are listening, others writing. The teachers are seated on large chairs with backs to them; the pupils are standing, or seated on low stools. Musical instruments and other objects are hanging on the wall.

The young boy did not go to school unaccompanied. As soon as he was old enough to leave the protecting care of mother and nurse he was put under charge of a pedagogue. It was the duty of the pedagogue to accompany the child wherever he went. On the Duris vase we see a pedagogue in the school. He watched over the boy at all times, took care that he developed proper habits, civil manners, etc. He accompanied him to school, to his music teacher, to the teacher of calisthenics. He carried his books and waxen tablets and harp. He selected the boy's companions, and did not allow him to speak with strangers or with others that might in any way harm him. The pedagogue was generally a kind old man—a tried servant. In art he is represented as bald with wrinkled forehead, wearing a long chiton belted at the waist, and over this a loose flowing mantle. He generally carried a long staff with a crooked top.

The young boy went to school at sunrise and often spent the entire day there, with the exception of a short pause at midday for lunch. (Thuk., VII, 29; Æsch. Timarch., 12.)

It is scarcely necessary to state that often rich parents kept a teacher in the house for their children. In Diogenes Laertios (IV, 74) we read of how Diogenes of Sinope served as teacher in the house of Xeniades. He had been kidnapped by pirates, who sold him as a slave to Xeniades, and Xeniades kept him to teach his boys.

The course of studies consisted of three branches—letters, music, and gymnastics These constituted the *εγκύκλιος παιδεία*, or circle of studies. Often the same teacher taught both letters and music in his school. Sometimes, however, the pupil took his letters in one school and his music in another. The gymnastic exercises were always taught in places fitted out especially for that purpose. It seems that up to about his twelfth year the young scholar spent most of his study time at music and letters. For the Greeks the relationship between music and literature was very close. Of

the two, music was naturally the older, and their cultivated literature grew out of their cultivated music. We are not surprised that they kept the two so closely united in their school curricula.

As soon as the pupil learned to read he began to study the poets. He was obliged to copy special passages on his waxen tablet. Little use was made of what we call text-books. The pupil studied no lessons at home. Much of his literature he learned word for word by memory. The teacher helped him in this by reading with clear, firm pronunciation one or two sentences and then having the pupil repeat them. It is not surprising then to read of old Athenians that knew many poems from beginning to end by memory. Most educated Athenians could quote readily and extensively from Homer and the other poets. Nikeratos (see Xen. Sympos., III, 5) could repeat both Iliad and Odyssey from beginning to end. The reading books most used by the pupils were made up of selections from various poets put together into one volume. Such a collection was *αἱ ὑποθῆκαι τοῦ Χείρωνος*, said to have been collected by the centaur and used in the education of Achilles. (Bernhardy, Griechische Literatur, II, A, 535 ff.).

These readers included excerpts from Phokyllides, Solon, Mimnermos, Theognis, and other lyric and gnomic poets. Probably also the dramatic poets were read, but the poets most preferred were Homer and Hesiod. Well known is the story about Alkibiades and the teacher. Alkibiades told the teacher that he wished to learn to read Homer. The teacher said that he had no copy of Homer. Thereupon Alkibiades rapped the teacher with his cane and went off to another school. (Plut. Alkibiad. 7.)

They studied the prose writers as well as the poets. However, it seems that they read the poets during their younger school years and the prose writers later. During their ephebeia—that is, from their eighteenth to their twentieth year—they may have read prose authors more extensively. At least an inscription has been found, belonging indeed to a time later than the period we are now considering (see Corpus Inscriptionum Atticarum, II, 992), but yet perhaps indicating a practice as early as our period, which contains a list of books which ephebi should read. The list contains the names of both poets and prose writers. Unfortunately the inscription is preserved only in a fragmentary condition.

It is not difficult to understand why the Greeks kept music and literature so closely allied. To the Greek the term music included not only what we understand by vocal and instrumental music, but also a knowledge of the laws of meter, of rhythm, of pronunciation, of enunciation. The musical instruments whose use was taught in the schools were the lyre and the flute. The flute, however, was not a favorite instrument. With the Greeks instrumental music was entirely subservient to the thought expressed in language, and its principal use was to accompany the chanted words. The flute, therefore, was regarded as an instrument that degraded the player, because it prevented him from using his voice. Moreover, they thought that it added no grace of pose and that it distorted the face. A myth used to be told about Athene, that she found a flute and began to play on it, but happening to see a reflection of herself in her polished shield she was disgusted at how the blowing on the flute made her mouth crooked and caused her eyes to protrude and her cheeks to swell out. So she threw it away as far as she could. A satyr found it, and made merry times with it. (Aristotel Politica, 8, 617.) Alkibiades was advised by his teacher not to talk so much if he wished to learn the flute. He replied: "In that case I do not wish to learn it; teach it to the Bœotians, who are too stupid to talk." (Plut. Alkibiad., 2.)

Greek education did not profess to produce specialists. Accordingly, such musical training as was given in the schools was very different from what was given to those that wished to become professional musicians. In the time of Aristotel, however, this high idea was no longer upheld, and he complains that in his day most people learn music not as a means to culture, but to pleasure.

How common it was for Athenians to have a certain amount of education seems to be shown by the sausage man in Aristophanes's Knights (188 f.), where, to heighten

the boorishness of his character, he is made to say that he has no learning other than a slippery knowledge of the letters,

Αλλ' ὦγαθ' οὐδὲ μουσικὴν ἐπίσταμαι
Πλὴν γραμμάτων, καὶ ταῦτα μέντοι κακὰ κακῶς.

The Athenians worshipped not only intellectual and moral perfections, but also those of the body. They thought a sound body to be a worthy possession, and took special care to educate the bodies of their boys into strong, lithe, and sinewy ones. The younger boys received their physical training in the palestra. Their older brothers, above the age of 18, went to the gymnasia. The palestra was an inclosed space with room to throw the diskos and the javelin, to race, to wrestle. There were places where they could roll in the sand, bask in the sun, anoint themselves with oil, and bathe.

Such was the education of soul, mind, and body that the boys of the Athenians enjoyed up to their eighteenth year.

THE EPHEBI.

At 18 years of age the Athenian became an ephebos, and as such entered upon a two years' probation before being allowed to enjoy the rights of citizens. These two years of ephebia were devoted chiefly to a kind of military life, but at the same time intellectual training was not entirely neglected. However, they did not frequent any regularly established institutions for higher learning. No such institutions existed for them. The first representatives of a higher scientific culture in Greece—the philosophers, the artists, the architects, the physicians—did not found institutions that could be frequented by whosoever wished. They rather confined themselves to a personal following and taught in such a way as suited intimate and personal friendship. Even medicine was not taught in a public way, but handed down traditionally and orally from old practitioners to favored pupils. Thus it was that such professions were, at least in earlier times, usually confined to certain families, as, e. g., that of medicine to the Asklepiads.

Perhaps the first philosophical school that could be regarded as a systematic organization for higher studies was the Pythagorean. Here we find definite studies—philosophy, mathematics, moral teaching, religious teaching, music, medicine, etc. But the teachings of the Pythagoreans were not accessible to all as a general means of education. They were intended only for the members of their own society.

But in the second half of the fifth century before Christ a class of men arose who professionally offered themselves as teachers of higher studies, accepting as disciples whoever would pay them. Among these new professional teachers we find many remarkable men. But their methods and doctrines were not always blameless. Their successors, Sokrates, Platon, Aristotel, have not left us a favorable record of them. Their very name has become synonymous with deceit in matters of intellect—sophists.

But the tendency of these sophists to gather groups of scholars around them gradually developed into the founding of real schools for higher learning. Platon and his disciples met in the grove called the academy, where Platon had caused suitable buildings to be erected for the benefit of the students. This academy became in a true sense a fixed and well-established school. Likewise did the Peripatetics found a school, establishing themselves in the gardens and buildings which Theophrastos gave them. The Epicureans lived in a large house bequeathed to them by their founder. We have thus the first settlings of scholars into what we may call institutions of higher learning.

These schools increased the reputation which Athens had long been acquiring as being the center of culture in Greece. This intensity of education attracted young men from beyond the confines of Greece proper even as early as the time of Isokrates. In his day youths came from "Sikelia and Pontos and other places" to be educated in Athens. (*περὶ Ἀντιδόσεως*, 224.) It must not be forgotten, however, that they

came to Athens not as though it were the only center of education, but merely because it was the most famous center.

In these institutions rhetoric, poetry, logic, dialectics, metaphysics, pure mathematics, the natural sciences, etc., were taught. But professional schools also began to exist. The Asklepiads founded two famous schools of medicine—an empirical school at Knidos, and a philosophical school of medicine at Kos. This school of Kos produced Hippokrates, the first great scientific physician of the Greeks.

Of the natural sciences, geography was one of the first to be cultivated. On account of the practical knowledge gained by traveling for the sake of trade, as well as the information gotten by coming into contact with Phœnicians and others, geography had made respectable progress in the fourth century before Christ. Pytheas, who according to Bougainville (Memoires de l'Académie des Inscriptions, XIX, 148) flourished before Aristotel, made use of astronomical observations to fix localities. He had voyaged as far north at least as England.

Geographical maps are of ancient origin. The earliest one mentioned in Greek literature is accredited by Strabon (I, 17) to Anaximandros, of Miletos, a disciple of Thales. Thirty years after the death of Anaximandros, Aristagoras, tyrant of Miletos, came to Sparta to persuade King Kleomenes to engage in war with the enemies of Aristagoras. He brought with him a map of the countries of Asia which he wished to induce Kleomenes to invade.

SPREAD OF GREEK EDUCATION IN ALEXANDRIAN TIMES.

The armies of Alexander subjected the whole eastern world to the Græco-Mackedonian sway. The numerous smaller kingdoms that sprang into existence out of his vast conquests all claimed to be Greek, and with a certain violence of fate took to Greek culture and habits and education. Thus did the whole eastern world become Hellenistic if not Hellenic, having centers of learning and schools of literature and philosophy at Athens, Alexandreia, Pergamon, Rhodes, Byzantion, Tarsos, and many other places.

The scholars of this period were not creative, but rather reflective. They did not produce great masterpieces of poetry or art, nor did they devise new systems of philosophy. They were scholars and critics, rather than original makers. They were students and codifiers. They gathered together the wisdom of their forefathers. This they transmitted to posterity. In Alexandrian times higher education concerned itself chiefly with seven branches—philosophy, rhetoric, dialectics, mathemathics, geometry, astronomy, and music. Athens was the most famous seat of philosophy, and Alexandreia of philology.

Elementary schools during this period must have been very similar to the same schools of the preceding period. Most of them were private affairs. The grammatodidaskalos opened a school wherever he could succeed in getting a few boys together. Girls received their elementary education at home. Women, however, were not entirely debarred from the advantages of higher education. It seems that they sometimes frequented the schools. And we have instances, even, of women teaching in these schools. Of these Hypatia is a well known example.

It may be that provision was occasionally made for the educating of children of such parents as could not afford to pay the school expenses. We possess a highly interesting inscription from the island of Teos describing details relative to a school in that city in the third century before Christ. (See Bulletin de Correspondence Hellenique, p. 110 ff., and Dittenberger, Sylloge Inscr., Græc., 349.) The inscription records the fact that Polythrous, a Teian, gave to his city 34,000 drachmas to be used for the educating of boys and girls. He provides for the yearly appointment of three teachers of letters *γραμματοδιδάσκαλοι*, with salaries of 600, 550, and 500 drachmas each, for two pædotribes, one music teacher, a teacher of archery, and a teacher of the use of weapons—in all, eight instructors. The pupils were to be divided into three grades, of which the third was to consist of ephebi.

This instance of giving money for purposes of common education was not an iso-

lated case. Perhaps such gifts were not unusual. Among the inscriptions found at Delphi (Bulletin de Correspondance Hellenique, v, pp. 157 ff.) is one commemorating a gift of money from Attalos II, King of Pergamon, to the Delphians. From the interest of this money at 6¼ per cent, the community had a yearly income of 1,260 drachmas, which they expended in teachers' salaries.

THE SCHOOLS OF ATHENS.

From the middle of the second century before Christ down to the end of the first century after Christ, the schools in Athens flourished, and were frequented by many from outside of Greece proper. But in the second century after Christ they acquired new fame from the fact that, beginning with Hadrian (117–138), the schools of Athens came to be specially patronized by the Emperors of Rome. The Emperors established a number of salaried positions to be filled by teachers of philosophy and rhetoric. These positions were called *θρόνοι* or "chairs." It seems that the first to occupy such a throne and receive a salary from the Government was the philosopher Lollianos, who taught during the reign of Antoninus Pius (138–161). In the time of Marcus Aurelius (161–180) there existed four chairs of philosophy, the Platonists, Peripatetics, Stoics, and Epicureans having one each. Each professor received a salary of 10,000 drachmas. (See Buchsenschutz, Besitz und Erwerb im Griechischen Alterthume, p. 567.)

These different professors were absolutely independent of each other. The lectures were not all given in any one building set apart for that purpose. There was no governing head to bind the teachers together into one body or faculty, although we do hear of the office of *επόπτης*, or "director," filled in the time of Marcus Aurelius by Herodes Attikos. The epoptes seems to have been consulted in the appointment of the professors, an honor later allowed to the Areopagos.

The system of teaching by dialogue, which was prevalent in the earlier schools of Athens, gradually gave way to the method of teaching by lectures. These lectures were supplemented by exercises done by the students, similar to the students' work in modern seminaries.

In those days Athens possessed many celebrated teachers, such as Cassios Longinos the walking museion, Prohæresios, Proklos. This last scholar, in the fifth century after Christ, kept bright the luster of the Platonic school of Athens.

As Christianity began to take gradual possession of the city of Pallas, there came no remarkably bitter conflict between the teachers of the dying paganism and the new Christianity. Both met on the common ground of Greek wisdom. Now a Christian, now a pagan would fill the same thrones. Still in Athens, as elsewhere, a crisis had to come, and the teachers of the old succumbed to the power of the new.

How thoroughly Athens, after her political downfall, continued to be a city of letters is illustrated in a way not entirely complimentary to its inhabitants. In the year 267 A. D., when the Heruli overran much of southern Europe, they came to Athens and captured the city. A story says that, after plundering the city of whatever the northern barbarians thought worth carrying off, they collected an immense pile of books together and were about to burn them. But one of their number advised them not to do so, saying that it would be better to leave their books to the Athenians, because people who spend their time with books will never be warriors, and therefore will never be dangerous to such as the Heruli.

In these philosophic schools of Athens the tendency was not any longer to discover new truths, but rather to interpret old ones; not to create new sciences, but to study the sciences handed down from the masters. These teachers identified, classified, and labeled (so to speak) the specimens of science and truth that they had inherited from past scholars.

They were not regardless of popular fame. They took care to have a large number of hearers. They did not come into such personal contact with their students as did Sokrates and Platon and Aristotel. This tendency toward popularization came

immediately after the passing away of the great masters. Theophrastos, the successor of Aristotel, taught to an audience of from 1,000 to 2,000 disciples. Stilpnon of Megara used to count among his hearers many a ἑταίρα. And these ἑταίραι were not the least intelligent of his hearers.

A vivid and attractive picture of academic life in Athens in the fourth century has been preserved to us by St. Gregory Nazianzene. (Opera I. pp. 327, 328, ed. Morelli.) The arrival of a new student was quite an event. A sharp lookout was continually kept for newcomers. They were discovered even before landing, or immediately thereupon. The crowd of students that first got possession of the new arrival enrolled him into their special coterie, whether he wished it or not. They first entertained him at one of their favorite haunts or at the house of a previous acquaintance of his, or of a relative or fellow countryman. They initiated him in quite a rough way, making him the butt of jokes, raillery, and threats. The initiation ended by sending him to get a good regulation bath. Then they brought him to call on the professors, and make arrangements for attending lectures.

Not only new students but new professors also were obliged to submit to the discomforts of initiation. At least the historian Olympiodoros describes an odd series of events as happening on the occasion of the appointment of the teacher Leontios. (See Geographi Græci Minores, I, pp. 461-462.)

It is clear, therefore, that these later Greek students were sufficiently boisterous and troublesome. Not only at Athens did they act thus, but likely in all the schools of the Empire. The law students seem to have been especially prone to such disturbances. The Synod of Troullos in 691 had to take cognizance of them. The seventy-first canon of that synod forbade them in future from following heathenish practices, from organizing into theater parties, from celebrating the "kylistræ," and from wearing a dress different from that worn by other people.

THE SCHOOLS OF ALEXANDREIA.[1]

Under the Ptolemies the new Hellenism flourished in Alexandreia. Indeed, so important in the literary life and culture of those days was Alexandreia that it gave its name to the period, and we speak of all Greek culture of that time as Alexandreian.

In the city of Alexandreia the centers of this activity in higher education were the library and the mouseion.

The library was not merely a collection of books, but was an institute for higher philosophical and philological learning. Founded by Ptolemy Soter, it grew so rapidly that under Ptolemy Philadelphos it already contained 500,000 volumes.

As Athens was the center of philosophical teaching, and Rhodes of rhetoric, etc., so at Alexandreia the chief study was philology. Here studied and taught Aristophanes of Byzantion and Aristarchos of Samothrake, not to mention others also famous even down to the present day.

The mouseion was a school of arts and sciences. The studies chiefly pursued there were those not provided for in the library, viz, the natural sciences, experimental sciences, pure and applied mathematics, and medicine.

The school of medicine became famous throughout the world, especially for its surgery.

Not far from the mouseion was a zoological garden, in which were kept animals from all parts of the known world, as objects of study. There was also a botanical garden, in which strange plants were cared for and acclimatized. Astronomy was studied and observatories fitted up for this science. Eratosthenes discovered a

[1] See Ger. Dedel, Historia Critica Bibliothecæ Alexandrinæ, Ludg. Batav., 1823.

Dissertation Historique sur la Bibliothèque d'Alexandrie, par Bonamy, in the Memoires de l'Académie des Inscriptions, IX, 397 ff.

The Alexandrian Library and Museum, by Dr. Alfred Gudeman, in the Columbian Literary Monthly, December, 1894, pp. 1-12.

method of correcting the faulty chronological system then in use. Here it was that Euklid composed his Elements of Geometry, which we still use.

When Christianity took possession of Alexandreia, both library and mouseion were still flourishing; and many of the first and most learned of the Christians studied in these institutions. Christianity saw nothing fundamentally repugnant in them, and they continued to exist, with some opposition, to be true. Both library and mouseion flourished for almost a thousand years. The library seems to have come to an end only in the year 642 when Alexandreia fell under the sway of the Caliphs.

During this long period of existence these institutions often suffered materially. Numbers of books perished in the fires on the occasion of the capture of the city by Julius Cæsar. Again in the time of the Emperor Aurelian the entire quarter called the Brucheion was burned during a riot, and much school property destroyed.

The influence of Alexandreia on letters and culture has been incalculable. It is not an exaggeration to believe the words we read in Athenæos (IV, 184) that at one time Alexandreia taught the world. *Ἀλεξανδρεῖς εἰσιν οἱ παιδεύσαντες πάντας τοὺς Ἕλληνας καὶ τοὺς βαρβάρους.* (See also Apol. Tyan. epist. 31.)

THE SCHOOL OF PERGAMON.[1]

Pergamon after the division of the Empire of Alexander was chosen by Lysimachos to be the storehouse of his wealth. The city was conveniently situated, and its citadel was one of the strongest. Lysimachos appointed Philetæros of Bythenia to be custodian of the treasure and commandant of the city. But Philetæros, taking advantage of the war between Lysimachos and Selevkos, declared himself independent. The successors of Philetæros increased the territory of the city, and finally in the year 241 B. C., Attalos I, after having successfully driven the terrible invaders, the Gauls, out of his territory, assumed to himself the title of king.

The Kings of Pergamon were almost as remarkable as the Ptolemies for their patronage of learning and art. In fact, they became bitter and open rivals of the Kings of Egypt. In this respect, it is said that the name of pergamenian paper, or parchment for vellum, comes from the fact that when the Ptolemies, through jealousy of the school and scholars of Pergamon, forbade the exportation of Egyptian papyros into the Kingdom of Pergamon, the Pergamenians were then obliged to employ writing material of some other kind, and turned to vellum, whose mode of preparation they so improved, and which they used in such large quantities, as to give their name to the material forever. (See Plinius, Hist. Nat., XIII, 11, and Das Antike Buchwesen, von Theodor Birt, Berlin, 1882, pp. 46-126.)

This strong rivalry between the two schools and the determination of the two dynasties to acquire for their libraries every book known caused the making of a number of spurious works. If a certain writing of a favorite classic author was not to be found in any part of the Greek world, some clever scholar would often succeed in manufacturing a counterfeit copy and selling it to one of the libraries at a high price. (See Galenos in Hippokrat de Nat. Hom., II, 17.)

At Pergamon as at Alexandreia the chief studies were philology and philosophy. But history, mathematics, medicine etc., had teachers and scholars also.

Among the philologians the most noted was Krates of Kilikia, who became the founder of a special school of philology, the Kratetians, *οἱ Κρατήτιοι αἱρεσις*. Krates and his school were opposed by Aristarchos and others of the Alexandreian school. It is said that Krates and Aristarchos met at least once in dispute over their differences.

The library collected in Pergamon must have been very large, because Mark Antony is said to have sent 200,000 volumes as a present to Kleopatra, to replace the books burned by the soldiers of Julius Cæsar.

[1] See De Aula Attalica Literarum Artiumque fautrice commentationis Historicæ pars prior, quam * * * subjecit Casparus Fridericus Wegener. Havniæ, 1836.

HIGHER EDUCATION IN OTHER CITIES.

We must not allow ourselves to think that the few schools we have already mentioned were the only important ones for Greek culture. There were very many other centers of higher education in the immense territory that had now become more or less Hellenic. In Antioch we find, as in Alexandreia, a library and a mouseion. But the school of Antioch rose to its highest fame after it had become Christian. As far west as Marseilles a school for higher learning flourished. In Rome the number of Greek teachers was legion. When Æmilius Paulus conquered Perseus, the Makedonian King, he brought the magnificent library of the conquered monarch to Rome, regarding it as the most valuable part of the spoils. It was the first large library that Rome ever contained.

In the east schools existed everywhere—at Rhodes, at Byzantion, at Tarsos, etc. Strabo tells us that the inhabitants of Tarsos surpassed the Athenians and Alexandreians and every other people in philosophy and other general culture, and that they had schools for all kinds of intellectual training. *Τοιαύτη δὲ τοῖς ἐνθάδε ἀνθρώποις σπουδὴ πρός τε φιλοσοφίαν καὶ τὴν ἄλλην ἐγκύκλιον ἁπασαν παιδείαν γέγονεν, ὡσθ' ὑπερβέβληνται καὶ Ἀθήνας καὶ Ἀλεξάνδρειαν καὶ εἴ τινα ἄλλον τόπον δυνατὸν εἰπεῖν ἐν ᾧ σχολαὶ καὶ διατριβαὶ τῶν φιλοσόφων γεγόνασι * * * καί εἰσι σχολαὶ παρ' αὐτοῖς παντοδαπαὶ τῶν ἄλλων περὶ λόγους τέχνῶν.* (Strab. XIV, 5, p. 228, ed. Tauch.)

At Rhodes there was a famous school of oratory and rhetoric. The school existed as early as the time of Demosthenes, and perhaps was founded by his great rival, Æschines, who at least taught in Rhodes. This school became celebrated in the first century before Christ. It was much in favor with the young Romans, and Cæsar, Brutus, Cassius, and other celebrated men of Rome studied there.

CONDITION OF EDUCATION FROM THE TIME OF THE CHRISTIANIZATION OF THE GREEKS DOWN TO THE FALL OF CONSTANTINOPOL.

BYZANTINE HELLENISM.

Constantinopol having become the capital of the eastern portion of the great Roman Empire, Constantine and his successors employed all tangible means to increase its magnificence and importance. It soon became the political center of the Christian world. The Emperors recklessly plundered other parts of their vast domain in order to enrich and beautify their chosen city.

The schools that hitherto had been focuses of higher learning at Athens and Alexandreia and Beryttos, etc., still, indeed, continued to exist, but grew weaker and weaker, not being able to compete with the attractions of Constantinopol, and, moreover, not being in favor with either church or state, because of being still un-Roman and still pagan.

Accordingly these schools gradually decayed. The school of Beryttos (Beyroot), famous as a school of law, lost its buildings in the earthquake of 551 and never rose again into existence.

In the reign of Justinian the schools of Athens were abolished by imperial decree of the year 529. (Malalas, II, p. 187.) Monastery schools were, perhaps, established to supply their place. It may be said, however, that the neo-Platonic school was the only one still in active operation, and this had already lost its importance. Teachers and students were but few.

It must not be forgotten that although the court of Byzantion was Latin in origin and in name, yet it was from the beginning Greek in the language and traditions of the people. Latin, indeed, was the official language of the court, but not of the inhabitants. The new Christian civilization, though hostile to Hellenic paganism, was not hostile to Hellenic philosophy and wisdom, which it had adopted and appropriated. A new epoch of Hellenism had begun, Christian Hellenism, which after a time was destined in some ways to eclipse even classic Hellenism.

It is certain that during all the long ages from Theodosios and Justinian down to the fall of Constantinopol, the Christians of the East were superior to the Christians of the West in education. This is exemplified by such facts as the great codifying of the laws in the time of Justinian, the councils of the church, which were held in the East, the various heresies that arose among the Eastern peoples (people that do not think are not liable to fall into heresy), the many scholars who continually came to the West with Eastern lore and books, the Byzantine learning which the Arabs brought into Europe, instances of kings and princes who sent their daughters to the Eastern capital to receive that polish which the Western world could not give, Western scholars who went to the East to study despite the jealousy between the two great churches. These facts all go to show the higher position which the East held in culture and knowledge.

In 1240 John Bassing, archdeacon of St. Albans, brought a number of Greek books into England from the East, from Athens.

It must not be thought that the transition from paganism to Christianity was in every respect a violent one. A good illustration of how easy such a transition became in some cases is seen in the writer Nonnos, who, during the first half of the fifth century as a pagan writer, produced profane works, taking his inspiration from classic antiquity, and creating such monstrosities as the Dionysiaka, and who later as Christian added to his writings a paraphrase of the Gospel of St. John. (Kœchly, De Evangelii Joannei paraphrasi a Nonno facta. Zurich, 1860.)

The educated Christians would have had no ill-feeling whatsoever against the ancient learning if they did not fear its undue influence over the less educated. As an illustration of their love for classic truth and beauty take St. Basil's treatise on the use of the pagan authors. (Sermo de legendis libris gentilium; ed. Migne, pp. 563 ff.)

EDUCATION IN CONSTANTINOPOL.

According to Georgios Kodinos (de Origg. Constant. ed. Paris, p. 42), Constantine founded in his new city an institution for higher learning. As described by Kodinos, this institution bears a certain resemblance to a modern university. For the purposes of this school Constantine built a special edifice, the Tetradision. Twelve teachers lived in it, all of whom were in orders. The director of the school had also the care of the library, and of the church archives. Both director and professors were called œcumenical teachers, *οἰκουμενικοὶ διδάσκαλοι*. The young Julian,[1] who, in 361 became Emperor, may have studied in this school. At least when about 20 years of age he came to Constantinopol from Kappadokia to study. Constantine gave him the best opportunities to study, but forbade him to attend the lectures of the pagan Libanios lest this teacher might exercise an evilly alluring influence on the religion of the enthusiastic young Hellenist. The fact that Libanios taught for a time in Constantinopol shows that there were other excellent schools beside the one in the Tetradision. Julian, after becoming Emperor, enriched the library of Constantinopol by adding his own private collection of books to it. This library was probably the one which the director of the Tetradision had care of. The Emperor Valens (364-378) appointed seven antiquarii to copy manuscripts here.

The Emperor Theodosios, who also cared much for his capital city and who despoiled many another place of its objects of art and wealth in order to beautify and enrich Constantinopol, likewise busied himself to make it a more noted center of education. He reorganized, remodeled, and reinvigorated the school which Constantine had founded. It came into a new existence by virtue of a decree of the year 425. The school exercises were held in a large edifice called the Kapitolion. Ten grammatici taught the Latin language, which was still the official language of the Government. Ten other grammatici taught the Greek language. Three professors taught Roman oratory, and five sophists gave instruction in Greek rhetoric. One professor taught philosophy, and two taught law.

[1] See Randall, The Emperor Julian, Paganism and Christianity. Cambridge, 1879.

These professors were not allowed to teach in private schools, nor indeed in any other school than the university; such teaching was thought to be beneath their profession. After twenty years of teaching a professor received the title of "Comes" of the first order, and was enrolled among the nobility.

In the fire of 476 a library of 120,000 volumes is said to have been destroyed by the burning of a wing of the Tetradision. This shows what a quantity of books were already in Constantinopol. A story says that in this fire there perished a manuscript of the Iliad and Odyssy, written on serpent skin in letters of gold.

In the year 740 the Emperor Leon of Isavria closed the chief school of Constantinopol. He did so because having requested the faculty to render an opinion concerning Ikons, the faculty declared that the use of Ikons should be continued, an opinion which did not suit the purposes of the Ikonoklast. (See Walch, Geschichte der Ketzereien, Vol. x, p. 231). Later and unreliable tradition asserts that he caused the school to be burned, together with professors and apparatus and library.

During the reign of Michael III (842–867), the last Emperor of the House of Leon, the university was reestablished after having been closed for more than a hundred years. The hundred years that fall within this period are among the darkest in the intellectual life of the Byzantine Empire, and yet there was not even then absolute dearth of noteworthy scholars. At the beginning of this period we find Ioannes, of Damaskos, whom the synod of 754 cursed in his grave. Scholastic philosophy, which flourished so greatly in the West at a later date, owes very much to Ioannes of Damaskos. The Greek Church, up to the present time, regards him as its greatest dogmatic theologian.

The rebirth of learning in the time of Michael III was due in large measure to Bardas, the coregent with Michael. But even before the reign of Michael this renaissance had really begun. The Emperor Theophilos (829–842) had opened a philosophical and mathematical school, and located it in one of his palaces, the Magnaura. A strange event happened in his reign. The Kalif Al Mamoun sent to Theophilos a special embassy, asking that the teacher Leon be allowed to leave Constantinopol and go to Al Mamoun's capital city to teach. The Greek Emperor was surprised to learn that he possessed such a teacher. He made inquiries and discovered that Leon was teaching in a small private school. Theophilos refused to permit the newfound treasure to escape him. He immediately appointed a suitable place for him to teach in. Leon afterwards did much in encouraging the founding of schools, not only in Constantinopol, but in other parts of the Empire. He was of much assistance to Bardas in this work.

In the year 1045 the Emperor Constantios Monomachos interested himself in a school for higher studies. Whether this was a new foundation or a reorganization of the school already existing is hard to ascertain. There were some worthy professors in this school, among them Michael Psellos, who occupied the chair of philosophy. He taught Plato with success. Among his hearers were not only Byzantines, but also Arabs and Western Christians.

One of the principal departments in this school was that of law. This law school did good work in preserving and spreading a correct knowledge of Romæo-Byzantine law. This was really the first establishment of a genuine law school as we now understand such a school. It preceded the school of the West, that of Bologna, by half a century. Zachariae von Lingenthal, a famous authority on Byzantine laws, declares that the makers of the law school of Bologna were influenced by the model at Constantinopol. The law school of this academy of Constantinopol was founded by virtue of a "novella" *περὶ τοῦ νομοφύλακος*. Its first director, *νομοφύλαξ*, was Ioannes Xiphilinos, of Trapezous, who later became Patriarch of Constantinopol.

The numerous law manuscripts still extant from the eleventh and twelfth centuries show how fruitful this school was. (See Geschichte der Byzantinischen Literatur, von Karl Krumbacher, p. 606.)

This revival of learning came to a sudden end in 1204. In that year the wild western Franks took possession of the city. Their rude contempt for all that was

concerned with literature, or the polite culture of the East, is fully testified to by Niketas Choniates (p. 382, ed. Paris). He tells of how the soldiery carried writing material and books through the city, mocking the Greeks as being a nation of book men.

After the expulsion of the Latins in 1261, the cause of education was again patronized by the Emperors of the house of Palæologos. But the Empire was in the way to death, and these late scholars' chief good work was that they preserved what was left of literature, and carefully handed it over to the reawakening West, which received it and cherished it, and through it developed into what it now is.

THEOLOGY.

European theology as a science owes itself to Christianity. Theological science, as met with in the Byzantine Empire, and as crystallized into the teachings of all Christian denominations of modern Europe, especially, however, the teachings of the Greek and Latin churches, is a product of the meeting of two streams—Christ's divine teachings and Greek wisdom.

Down to the twelfth century theological literature, and church literature in general, stood higher in the East than in the West. There was in the East no violent break between the patristic literature and the Byzantine ecclesiastical literature. In the West, however, there was such a break, caused by the invasions of the barbarians and the destruction of the old Latin civilization.

THE TEACHING OF GRAMMAR.

Since the habit of forming all literary style on the basis of the classic writers still continued to prevail, it was natural for the Byzantines to continue to use the old grammarians of the Atticistic period as their teachers in the use of words, phrases, and constructions.

During this entire period we find the old works of Dionysios Thrax, Apollonios Dyskolos, and Herodianos used as the authorities in grammatical teaching. These works were not read in their original form so much as in epitomes and commentaries. Among the best known commentaries were those of Theodosios of Alexandreia made in the fourth century, and those of Ioannes Philoponos, Ioannes Charax, and Georgios Choeroboskos made in the seventh century. These books continued in use down to the fall of Constantinopol.

THE STUDY OF RHETORIC.

The art of composition was a specially beloved study. Accordingly the number of manuscripts of text books on rhetoric is very large. Most of them are of little value. They are all outgrowths of such works as those of Hermogenes and Aphthonios, who flourished in Roman times. These text books follow the old system in vogue with rhetoricians of the preceding period. They train the student to compose various kinds of themes in the following order: Fables, *μῦθοι*; narratives, *διηγήματα*; chriæ, *χρεῖαι*; refutations, *ἀνασκευαί*; argumentations, *κατασκευαί*; *γνῶμαι* or enlargements on sententious sayings, and character sketches, *ἠθοποιΐαι*. (See Walz, Rhetores Græci, Stuttgartiæ, 1832–1836, or Spengel, Rhetores Græci, Leipzig, 1853–1856.

HISTORY.

No other people of Europe possess such a long and unbroken series of historical literature as do the Greeks. It begins with Herodotos, in the fifth century B. C., and comes down to Laonikos Chalkondylas, whose ten books of histories end with the year 1463, and from Chalkondyles down to the present day. Much of this historical matter has not yet been published, and most of it has not yet been critically examined.

MATHEMATICS AND ASTRONOMY.

Byzantine culture did nothing for mathematics. Stephanos of Alexandreia, who lived in the time of the Emperor Herakleios (610–641), was the last of the old line of mathematicians. After him up to the age of the Palæologs we find no writers or teachers skilled in these sciences. This Stephanos was public professor, οἰκουμενικὸς διδάσκαλος in the University of Constantinopol.

With the efforts at intellectual revival that took place under the Palæologs, after their return to Constantinopol in 1261, there came also a new life into mathematical and astronomical studies. The principal impulse to these studies came at this time from the Arabs and Persians. Translations of Arabic and Persian works were made, and original works were written under Arabic and Persian inspiration.

In the year 1325 Nikephoros Gregoras presented to the Emperor Andronikos Palæologos the details of a plan for the correcting and improving of the calendar. But the Emperor, fearing that the change might not be acceptable to his people, did not accept it.

MEDICINE.

In the science and practice of medicine likewise the Byzantines made no important progress. The books from which they studied were the writings of the old masters, especially Hippokrates and Galenos, either entire or more usually in excerpts and epitomes.

Nevertheless Alexandros of Tralles (525–605) produced a work on pathology in twelve books, in which he shows himself not only an intelligent follower of the masters but an independent thinker as well.

In the seventh century we find Paulos of Ægina, who wrote a handbook of medicine which contains much that was new, especially in surgery. This work was regarded as of such importance as to be translated into Arabic, and from Arabic into Latin. It has been translated into English by Francis Adams (three volumes, London, 1845-1847).

Toward the end of the thirteenth century Nikolaos Myrepsos wrote a book of prescriptions which was thought to be so useful that it enjoyed great reputation in the West, and held its place as a well recognized "codex pharmaceuticus" of the faculty of Paris as late as the beginning of the seventeenth century.

Among the working classes it is quite probable that but few of the women could read. Among the men, however, such ability may not have been uncommon, since school and teachers, public and private, lay and clerical, were plentiful. Among the middle and upper classes general education, ἐγκύκλιος παιδεία, was a not uncommon acquisition for women as well as for men.

CONDITION OF EDUCATION AMONG THE GREEKS FROM THE FALL OF CONSTANTINOPOL IN 1453 DOWN TO THE WAR OF LIBERATION IN 1821.

The fall of Constantinopol naturally affected the condition of education in the Byzantine Empire. The Turks, though not always openly hostile to Byzantine education and culture, looked upon it with disdaining indifference. For them the Koran was sufficient. Yet they did adopt some of the outward and moribund forms of Byzantine culture. For example, they accepted Byzantine architecture in the building of their mosques. They did not interfere in any direct way with the education of such Christian inhabitants of the Empire as could pay liberally for the privilege. They did not refuse to sell permission to found schools; they did not silence the teachers, nor did they forbid the transcription of books. Yet the simple fact that these Christians were not free men; that they lived under a Government which they regarded as a punishment from God, and which treated them as merely tolerated aliens; the fact that no career was, under ordinary circumstances, open to the scholar save that which the church afforded; the fact that the people were plunged in the abjectest poverty; the fact that it was a dangerous thing for a parent to make his children too attractive by education or otherwise, because he thus increased the risk of their being appropriated for some harem or band of eunuchs or janizaries—all

these facts weighed heavily on the cause of education. Every four years a certain number of small Christian boys were taken from their parents to be trained as janizaries. The very existence of this child tribute, the heart-breaking *Παιδομάζωμα* (see the drama of this name by Demetrios Kampouroglos) and the tax of one-tenth of the male children for employment in various offices, threw such a foreboding gloom over family life that education could not well flourish, even if there were no other causes to prevent it. The Pædomazoma dates from about 1650.

Instead of not understanding the humble condition of education among the Greeks under Turkish rule, we are astonished to find so much of education there; astonished at the vitality of old Hellenism which did not entirely succumb even to Mahometanism.[1]

Hellenism seems to be one of these mighty forces of nature which when forcibly stopped in its regular flow will burst out in outlets into other directions. Thus one effect of the enslavement of the Eastern Empire was the great exodus of scholars from Constantinopol and Asia Minor and Thessalonika and Sparta, etc., into Italy and the other countries of western Europe. This stream of learning, oozing westward from its oriental sources, burst forth in Europe into a myriad of life-giving fountains, causing to spring up everywhere a new growth, a new zeal for the historic past, a new impulse and love toward things of beauty and truth, a new freshness and ambition and humanitas—in a word, a revival, a rebirth, of Hellenism, the Renaissance.

To follow these scholars from the East to the West and to examine into how they partook in bringing about the great revival would lead us away from our theme. Yet we can not say that their work was lost to their fatherland, because this powerful civilization of Europe has never ceased to shine back toward the source whence it came, and in these later days, when liberty has again taken up her abode in some of her old Hellenic centers, scholars from Europe, heirs to classic and Byzantine Hellenism, have been found ready to bring back to its home fresh seeds of the ancient culture. Yea, when under the dawn of a new life a university was opened in Athens, Europe furnished some of its best professors.

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[1] See Arsenius Mentschikow, De eruditione et re litteraria Græcorum ætatis Byzantinæ. Moscow, 1849.

Σχεδίασμα περὶ τῆς ἐν τῷ Ἑλληνικῷ Ἔθνει καταστάσεως τῶν γραμμάτων ἀπὸ Ἁλώσεως Κωνσταντινουπόλεως μέχρι τῶν ἀρχῶν τῆς ἐνεστώσης ιθ ἑκατονταετηρίδος ὑπὸ K. Παρανίκα. *ἐν* K-πόλει, 1867.

Ἡ παρ' ἡμῖν δημοτικὴ παίδευσις ἀπὸ τῆς Ἁλώσεως Κωνσταντινουπόλεως μέχρι σήμερον, ὑπὸ Γ. Χασιώτου. in the Ελλ. φιλ. σύλ. viii, 94 ff.)

Νεοελληνικὴ Φιλολογία· Βιογραφίαι τῶν ἐν τοῖς γράμμασι διαλαμψάντων Ἑλλήνων, ἀπὸ τῆς καταλύσεως τῆς Βυζαντινῆς Αὐτοκρατορίας μέχρι τῆς Ἑλληνικῆς Ἐθνεγερσίας. ὑπὸ Κωνσταντίνου N. Σάθα. *ἐν Ἀθήναις*, 1868.

L'instruction publique chez les Grecs depuis la prise de Constantinople par les Turcs jusqu'à nos jours. Avec statistique, etc., par G. Chassiotis. Paris, 1879.

Geschichte der byzantinischen Litteratur von Justinian bis zum Ende des Oströmischen Reiches. Von Karl Krumbacher. München, 1897.

Χρονικὰ τῆς Πατριαρχικῆς Ἀκαδημίας· Ἱστορικαὶ εἰδήσεις περὶ τῆς Μεγάλης τοῦ Γένους Σχολῆς. 1454–1830. *ὑπὸ Μανουὴλ Γεδεών. ἐν* K-πόλει *φωπγ.*

M. K. *Παρανίκας, Περὶ τῆς ἐν Κωνσταντινουπόλει Πατριαρχικῆς Σχολῆς* in the Ἑλλ. Φιλ. Σύλ. vol. 25 (1895), pp. 49–56 and 61–66. See also remarks to same by Gedeon, pp. 56–61.

Κωνσταντίνου Α Πατριάρχου Κωνσταντινοπόλεως ἐπιστολὴ περὶ τῆς Μεγάλης τοῦ Γένους Σχολῆς (in the Ελλ. φιλ. Συλ ii, 286 ff.).

Byzantine science and schools in the eleventh century, by N. Skabalanovič (*Russian*, in the Christ. čtenie 1884 March–May).

F. Gregorovius, Die Legende vom Studium der Wissenschaften in Athen im 12. Jahr. (in the Zeitschr. für Geschichte und Politik, v (1888), pp. 805–817).

Ἡ ὀκτάηχος καὶ ἡ φυλλάδα τοῦ Μεγάλου Ἀλεξάνδρου, ἢ τὸ Σχολεῖον καὶ ὁ λαός. ὑπὸ Βλ. Γ. *Σκορδέλη* (in the *Παρνασσός* viii (1883), pp. 197 ff.).

Ἱστορία τῶν ἐν Ἰωαννίνοις Σχολείων ὑπὸ B. A. *Μυσταξίδου* (in the *Παρνασσός* x, pp. 55–76).

However, although the scholars that migrated to Europe are outside of our pale, yet, since they are better known to us than are those who stayed in their native land, I make this reference to them here; they serve as samples of what high scholarship flourished in a country that could produce such men. For details concerning them one must go to the history of culture and education in Europe during those times.

After the fall of Constantinopol the Greeks, as a nation in slavery, attracted very little attention in western Europe. In 1573 Martin Kraus, professor of Greek at Tubingen, moved by the correspondence that had been opened up between Protestant leaders and the ecclesiastics of the Greek Church, began to correspond with some Greek clergymen of Greece and Constantinopol. This correspondence he publishes in his Turcogræcia. It is easy to see that the Greeks of that day were almost unknown even to him. He asks whether Athens still exists, etc. But his correspondence was soon followed by a general awakening of interest in the East, and gradually toward the end of the eighteenth century the Greeks were again favorably before the world.

THE COMMON SCHOOL.

(Τὸ Κοινὸν Σχολεῖον.)

The schools of this period may be divided into two classes, the common or primary schools, and the Hellenic or advanced schools.

Since there were very few careers open to the educated Christian except that of an ecclesiastical life, the school naturally came under the special protection of the church. The school was regarded as a kind of succursal to the church. Accordingly the books used were chiefly such books as were needed in the daily service of the church, such as the Ἀπόστολος, the Psalter, the Ὀκτώηχος, and the Μέγα Ὡρολόγιον.

The sum total of what one could learn in a common school consisted in ability to read the books of the church service, in knowing the elements of arithmetic, and ability to write.

There were no buildings especially fitted out as schools for scholars of this class. They would assemble in the narthex of some church, perhaps, when their teacher was an ecclesiastic, or in the shop of some handicraftsman when he happened to be the school-teacher. They had no chairs, but sat crosslegged on mats or rugs laid on the floor. Their books were of course in manuscript, since the art of printing was not yet at their service. Each pupil usually had but one book. He was promoted to a higher grade by being allowed to take up a different book. The occasion on which a young boy was allowed to "change his book," *νἀλλάξῃ φυλλάδα*, as they used to say, was joyfully celebrated by his family and relatives. He was led in triumph from the school to his parents' house accompanied by the teacher and his fellow-schoolmates and his relatives. On arriving at the house all formally congratulated him and feasted and sang and danced in his honor. In the evening his mother sent to the teacher the gift of a fowl or eggs, or a piece of wearing apparel, to show the gratitude of the family. (See Χρόνος Νεολόγου, p. 150.)

The teacher was often a priest or deacon or other ecclesiastic, or the sacristan of the church, or a tailor or a shoemaker, or some other such handicraftsman who could both ply his trade and teach at the same time.

The schools were generally held in the daytime, but in the communities where the pupils were engaged in labor during the day night schools were sometimes held. A reference to these occasional night schools is contained in a song which used to be sung in those days and is still widely known throughout Greek lands:

Φεγγαράκι μου λαμπρό,
Φέγγε μου νὰ περπατῶ,
Νὰ πηγαίνω στὸ σχολειό,
Νὰ μαθαίνω γράμματα,
Τοῦ θεοῦ τὰ πράμματα.

(See the periodical Φιλίστωρ of Athens, Vol. I, p. 273.)

THE HELLENIC SCHOOL.

(Τὸ Ἑλληνικὸν Σχολεῖον.)

Along with the common schools there flourished another set of higher schools, called Hellenic. They took their name from the fact that in them the ancient Greek language, Ἑλληνικὴ γλῶσσα, was their chief study. In these schools the pupils studied ancient grammer and read and interpreted the ancient authors, both classical and ecclesiastical. Although the most of the boys that entered these schools, after finishing the course given in the common schools, were looking forward to a church career, yet there were others who intended to remain laymen. These Hellenic schools were of various degrees of excellence and thoroughness, according to their resources and the worth of the teachers they chanced to have. That some were of a high order is evident from the eminence of the scholars they produced. We shall have occasion to mention some of these scholars later. Alexander Helladios, speaking of these schools (in his Status Præsens Ecclesiæ Orientalis, p. 42 ff.), praises them and honors them with the peculiar title of "Universitatulæ." Schools of this high order existed in Constantinopol, Smyrna, Kydonia, Ioannina, Patmos, Athos, Thessalonika, and elsewhere. They were not universities, because they did not possess all of the schools that go to make up a studium generale, still some of the branches taught were handled as thoroughly as in contemporaneous western universities. (See Chassiotis, L'Instruction Publique, etc., p. 34.)

After the fall of Constantinopol there grew up around the residence of the patriarch a community of Greeks known in history as the Phanariotes, Φαναριῶται. They take their name from the quarter in which they lived, and the locality takes its name from a light-house, Φανάρι, which stood there at the edge of the water of the Golden Horn. From these Phanariote families the Sultan chose Christian governors and other officers needed for the administration of Christian provinces. Phanariotes were also employed as interpreters, etc., for intercourse with European governments. Phanariotes and Patriarch were usually well treated by the Sultans and enjoyed many privileges. Though obsequious to the Mahometan Government, they always continued true to the traditions of their own race. They established in Phanari an educational institution called the Grand National School, ἡ Μεγάλη τοῦ Γένους Σχολή. (See Χρονικὰ τῆς Πατριαρχικῆς Ἀκαδημίας· ἱστορικαὶ εἰδήσεις περὶ τῆς Μεγάλης τοῦ Γένους Σχολῆς. ὑπὸ Μανουὴλ Ι. Γεδεών. ἐν Κωνσταντινουπόλει αωπγ.)

This school had at times noted teachers and produced noted scholars. Theophilos of Korydala taught here when Kyrillos Loukaris was Patriarch. He has left us a bulky commentary on the writings of Aristotel.

In 1804 this school was removed from Phanari to Kourou-Chesme, a suburb of Constantinopol. (See the Ἑβδομάς for May 11, 1886.) But after a few years it was again brought back to Phanari, where it flourishes to-day, in a large and well-equipped edifice built especially for the purpose, and dedicated September 12, 1882.

These prosperous and influential Phanariotes patronized schools not only in Constantinopol, but also in other parts of the Empire. The Mavrokordatos family may be taken as an illustration. Alexandros Mavrokordatos, who had studied in Padua and Bologna, became professor in a Greek school in Constantinopol founded by Manolakis, an important school, distinct from the patriarchal school, which also existed at that time. He wrote a noteworthy treatise on the circulation of the blood, a Greek grammar, a text-book of rhetoric, a history of the Jews, history of Rome, etc. He encouraged the founding of schools and assisted according to his ability. He strove for the purification of the modern language and for its adoption as the literary medium. His children naturally followed his example. His oldest son was appointed to the position of hospodar of Wallachia, being the first Greek that ever occupied that office. One of his early acts as hospodar or governor was to establish a well-equipped school in Bucharest, and to found a printing establishment.

Generosity in the cause of education was characteristic of other rich Greeks also, as well as of the Phanariotes; so that the number of schools in good standing throughout the Empire was really remarkable. We find schools flourishing at some time or other during this period at the following places: Arta in Epeiros, Ampelakia in Thessaly, Mount Athos, Athens, Bucharest, Chios, Constantinopol, Chalke of the Prinkipo Islands in the Sea of Marmora, Demitsana in the Peloponnesos, Jassy, Jerusalem, Ioannina, Kydonia of Asia Minor, Leghorn, Lakka of Delbino in Epeiros, Moscow, Malenik of Makedonia, Missolonghi, Nikomedeia of Asia Minor, Odessa, Patmos, Padua, Rodosto, Serræ of Makedonia, Smyrna, Thessalonika, Tyrnabos, Tsaritsana, Triest, Venice, Vienna, etc.

Some of the schools mentioned above were outside of Greek lands. They were established by the residents of the Greek colonies in these places. Some of them date back to before the fall of Constantinopol. Thus in Padua of Italy we find a Greek school existing in the year 1407.

The above list contains only some of the more noted schools. Many a school existed and perished of which we have no record whatsoever. Everywhere throughout Greece one comes to places which the people of to-day call "the school," τὸ *δασκαλεῖο*, although the locality contains no school or traces of school. The name is merely the memory of long ago.

A good list of the schools flourishing in the eighteenth century is found in a grammar published in Venice by Georgios Phatseas. It contains most of the prominent Greek schools of his time (*Γεωγραφικὴ Γραμματικὴ τοῦ Φατσέα*).

The school at Jerusalem was one of the oldest. It may be regarded as the continuation of the *Μουσεῖον*, which the conquerer Saladin destroyed.

In Smyrna, as in other large Greek cities, there existed often more than one Hellenic school. The most noted school of this city was the Evangelical school, *Εὐαγγελικὴ Σχολή*. It was founded in 1743 by means of private contributions. It has had a successful career, and has done much for the advancement of learning among the Greeks of Asia Minor. It still flourishes. It possesses a splendid library and an archaeological museum. Since 1873 the school has published a periodical, the *Μουσεῖον καὶ Βιβλιοθήκη τῆς Εὐαγγελικῆς Σχολῆς*. This periodical contains good archæological, historical, and philological material.

The Island of Chios enjoyed more freedom than many other places in the Turkish Empire. On this account education had greater opportunity of spreading than elsewhere. There was no break in the chain of schools in this island from the time of the passing of the island into the hands of the Turks down to the massacre of 1821. Monks of the West vied with scholars of the East in diffusing education. During these four centuries we continually find Chians among the learned men of the time.

Near the shores of the Ægean, on the coast of Asia Minor, opposite to the Island of Mytelene, there flourished a beautiful little Greek town, Kydonia, the village of the citron trees. But this town is known to us more for its school than for its beauty. The school was founded by Gregorios Saraphis.

Among the young men that studied at Kydonia was Ambroise Firmin Didot. In the year 1817 he made an extensive tour through Greek lands, and, coming to Kydonia, he entered the school as a regular pupil. He brought with him a letter of introduction to Kaires, who was then professor there. The letter was from Korues. Didot remained an intern of the school for two months. He was young and enthusiastic and noble. He became the leading spirit in a society established by the students, all members of which agreed never to speak to each other except in Attic Greek. In his notes (Notes d'un voyage fait dans le Levant en 1816 et 1817, Paris, 1821) he gives us a copy of the "vow" they took. These notes contain many delightful reminiscences of his sojourn among the fiery young Greeks of Kydonia. (See Annuaire des Etudes Grecques, 1876, p. 233 ff.) A few years later Didot sent to Kydonia a full printing outfit.

In the monasteries at Mount Athos learning always held a certain footing; but it was available chiefly for monks only and their novices. In 1749, however, a change

took place. The monks of the monastery of Batopedion decided to open a school on a more liberal plan. They invited Neophytos Kavsokalybites to be its first scholarch. He accepted. The school was a success. As one of the men who taught here, Evgenios Boulgares, of Kerkyra (1716–1806), may be mentioned. He was a typical Greek scholar of his day. As classicist and Christian he translated two works into Greek—the Æneid of Vergil and the Confessions of St. Augustine. He afterwards enjoyed the patronage of the Empress Katharine and was made bishop of Kherson.

Ioannina (Janina), known to us as the chief city in the country ruled over by the celebrated Ali Pasha at the beginning of the present century and often mentioned by Byron, was highly favored by schools. Epiphanios Hegoumenos, who in 1647 founded a school in Athens, founded one at Ioannina in the same year. Later this school received other gifts and was a useful institution.

In the year 1676 another school was established in Ioannina, the founder being Manos Ghionmas, who gave 20,000 ducats for that purpose. This school also received other gifts and became an excellent school.

Still another was founded some years later by Simon Maroutsos. In this school Evgenios Boulgares taught for a time before going to Batopedion of Mount Athos.

The schools of Ioannina are noted for the number of teachers they produced.

In the mountain town of Demitsana, in the Peloponnesos, we find a school which since the year 1764 enjoyed the reputation of being one of the best schools of Greece. In this year the learned Agapios reorganized the school. Scholars came to it from all parts of the Peloponnesos. It has the glorious reputation of having educated Germanos, who afterwards, when bishop of Patras, was the first to unfurl the Greek flag and gave to the revolution of 1821 the character of a holy war for liberty and church. This same school educated Gregorios, who as patriarch of Constantinopol was murdered by the Turks in Easter week of 1822.

After the fall of Athens into Turkish control we have very scanty data concerning the condition of education. But on account of the historic importance of the city it is worth while to collect as many facts as possible.

The first reference to a school brings us to the year 1647, when Epiphanios Hegoumenos, a Greek of Venice, who had also contributed to education in Ioannina, founded a school in Athens. The reason why Epiphanios selected these two cities was probably because they were already in a certain way centers of education. In the following century the school of Epiphanios was still flourishing, as we find that in the year 1732 it received a gift from the Athenian Georgios Melos. This gift from Melos was in the form of a yearly income, and was intended to support one teacher and a small number of scholars.

That there must have been some culture in Athens at this time is to be concluded from the account which Père Babin, the Jesuit, has left us; for he highly praises the love of learning which he observed among the Athenians. This statement is in his Relation de l'État Présent d'Athènes, ancienne capitale de la Grèce * * * par Père Babin. 1674. (It has been published by Spon, and also by Laborde.)

Almost a century later Gregorios Soteres, a monk who had studied in Italy, returned to Athens and bought a house, which he converted into a school, where he himself taught the *εγκύκλια Γράμματα*. All of this he did at his own expense, receiving no salary and taking no fees from the pupils. When in 1782 he left Athens and went to Constantinopol, he dedicated his school to the community of Athens "to be and to be called a common academy of Greek learning, and to serve as a habitation for the successive teachers." This school continued to exist up to the year 1812. It was situated in the middle of the city, near to the Tower of the Winds. (See the article in the *Ἑβδομάς* for November 10, 1885, on *Τὰ ἐν Ἀθήναις πρῶτα Σχολεῖα*.)

About the year 1750 or 1754 another Greek of Venice, Ioannes Dekas, established another school at Athens, and deposited in the treasury of the Aristocracy of Venice the sum of 2,000 ducats, from the interest of which the school was to be supported. He provided for one teacher, with a salary of 200 ducats, and for twelve scholars

who were to receive each 25 ducats yearly. This school flourished until 1797, when, by the fall of Venice (in this year Venice submitted to Bonaparte, and at his orders the Aristocracy was abolished and a provisional government established), it was deprived of its revenue. It did not cease to exist, however, but struggled along to the year 1805, when it received new life from support given to it by the monastery of the Παμμέγιστοι Ταξιάρχαι. (See the sigillion in Τὰ κατὰ τὸν Αοίδιμον Γρηγόριον τὸν ἐ. ἐπὸ Γ. Π. Αγγελοπούλου ἐν Ἀθήναις, 1865, vol. II, p. 488.) With this new assistance the school continued to exist up to 1813 and perhaps later. (See Εβδομάς, loc. cit.)

In the year 1813 Petrakes, the hegoumenos of the Monastery of the Angels (τῶν Ἀσωμάτων), established a school of medicine in the monastery. The physician Dionysios Pyrrhos was the teacher. From the revenues of the monastery twelve scholars, as well as the teacher, were supported. The school continued to exist until the outbreak of the revolution in 1821.

DIDACTIC METHODS.

In the common schools the methods used for inculcating knowledge were quite primitive. Each pupil had his task to perform, and woe to him for all neglect. The punishment that awaited all ill success was the φάλαγγας, or the rod. Teacher and parents often repeated the philosophic Τὸ ξῦλο βγῆκε ἀπὸ τὸν Παράδεισον, "The rod is a gift of God." The parent often allowed full penal jurisdiction over a troublesome son, with the simple proviso Μόνο τὰ κόκκαλα γερά, Δάσκαλε, "but don't break any bones." (See Kondylakis's Πατούχας, cap. 1.) Each pupil prepared his task as best he could, either unaided or with the assistance of a more advanced pupil, a Πρωτοσχόλης. The lessons were usually conned aloud, and one of the chief duties of the schoolmaster was to shout "silence" when the droning grew too noisy.

For recitations, a system was in vogue by which the master heard the lessons of the more advanced pupils, and these the lessons of the inferior scholars. This method, by which the better scholars were both pupils and teachers, goes in Greek pedagogy under the name of the ἀλληλοδιδακτικὴ μέθοδος. On account of economic reasons it continued popular in Greece, improved into the Lancasterian method, even far down into the days of freedom; and even yet traces of it are to be found.

In the Hellenic schools more order reigned. But here also the Πρωτοσχόλαι, or advanced scholars, assisted as teachers of the younger pupils.

Ancient Greek and Greek literature were the chief studies. No attention whatsoever was paid to the study of the various vernacular dialects of their time. Whatever was not good ancient Greek was faulty language. The only grammar studied was that of the ancient Attic.

In the latter half of the eighteenth century Hellenic education among the Greeks was in its most flourishing condition since the fall of Constantinopol. Scholars began to devise better means of instruction. Pedagogics began to be studied. European systems were attracting attention, Koraes, in his Αυτοσχέδιοι Στοχασμοί, speaks of the new notions of Pestalozzi and his reforms in the practice of education, and says that although he does not know whether Pestalozzi was improving the system of education or not, yet he thinks that the Greek community of Constantinopol ought to send two young men to Europe for the purpose of studying the Pestalozzian system and of introducing it into the East if they find it good. (See Pantazides's Παιδαγωγική, IX–X).

THE SCHOOLS AS NURSERIES OF PATRIOTISM.

The warm though smouldering patriotism which was so instrumental in keeping the schools alive, and which was in turn fostered into intense heat by these same schools, is well illustrated by an event which happened one day in the Greek school at Bucharest. Georgios Gennadios was teaching, and this event is described in the writings of Alexandros Rangabes, who was then present as one of Gennadios's scholars. Among the pupils were also the sons of Alexandros Soutsos, hospodar of Wallachia.

Gennadios was interpreting Isokrates's celebrated Panegyric. The teacher read to his students the old sophist's description of the glory and splendor of ancient Athens. Becoming filled with ecstatic fire, he told the students to bar the doors. Then, shut in from all contact with the Turkish world outside, he made a burning comparison between the greatness of the past and the fallen condition of the present. Tears streamed down from his eyes, and every young Hellene present wept and cheered. A few months later many of them followed Gennadios to the war as members of the Sacred Band.

Thus it was that the schools which the dull oppressors allowed to exist, if properly bribed, became each and every one of them a radiating point whence the hope of freedom glinted out. Indeed, it was through literature and through the schools and through the church that the flame at last burst out. The young palikars were fired by the hymns of such as Rhigas, while the more enlightened were whetted into determination by the writings of such as Koraes and the teachings of Gennadios. The drama, as a literary and artistic expression of patriotism that could directly affect the people, could not have opportunity to produce its effect. It was too open to suppression. But yet in 1818 the Timoleon of Zampelios was represented at Bucharest, and assisted in awakening hopes.

THE PHILO-MUSE SOCIETY.

(Ἡ Φιλόμουσος Ἑταιρεία.)

The Philo-Muse Society, or Society of Art Lovers, deserves at least a passing notice.

In 1812 three men, then living in Athens, set about forming a society for the protection of the antiquities of Greece, the founding of a museum, the establishing of a library, and the founding of schools. These three men were Ioannes Marmarotoures, Petros Rebelakes, and Alexandros Chomatianos. The constitution of the society is published in Konstantinides's History of Athens. (*Ἱστορία τῶν Ἀθηνῶν ὑπὸ Γεωργίου Κωνσταντινίδου. Ἀθήνησι*, 1876, pp. 557 ff.)

The plan met with favor among the foreigners resident in Athens, as well as with the more prominent Athenians. Accordingly in 1814 the society came into existence with Ioannes Kapodistrias, later governor of Greece, as its president. Kapodistrias was at that time in the service and high friendship of Alexander of Russia; and through Kapodistrias's influence the Emperor of Russia, the Crown Prince of Bavaria, the Crown Prince of Wurtemburg, and others of high rank, became members. But the war broke out and put an end to the good intentions of these Hellenes and Philhellenes before they could put their intentions into practice.

FIRST GREEK BOOKS PUBLISHED.

One of the first books published after the inventing of printing was the grammar of Konstantinos Laskaris. It came from the press in the year 1476 in Milan. This grammar remained for a long time the only one in common use. Only after the appearance of Asopios's grammar, and the translations of those of Buttmann and Tiersch, was the grammar of Laskaris finally laid aside.

The first Greek poem ever printed was a paraphrase of the Iliad by a Greek of Zakynthos named Loukanos. The paraphrase appeared in print in the year 1526. It is a tasteless and unscholarly production. The book is illustrated with woodcuts. Achilles is represented as a medieval count, and the priest Chryses is decked out in the cowl and cassock of a western monk.

Within the Turkish Empire it was not easy to begin to print. Accordingly these books mentioned, and nearly all of the other first Greek books printed, were published in Europe.

The Patriarch Kyrillos Loukaris, otherwise well known as a man of innovations, had a printing establishment set up in Constantinopol under the management of

Nikodemos Metaxas, of Kephalenia. But a pamphlet was printed from it attacking some doctrines of the Moslem religion. The surest way to prevent a repetition of the offense was to demolish the establishment. This the Turks did.

LITERARY CONDITION OF THE PEOPLE.

To properly understand the condition of higher education in any nation one should include all of the literature and all of the other media through which higher aspirations and higher success are indicated. But the literature of the period we are now concerned with is not yet accessible to the ordinary scholar. Eminent men like Konstantinos Sathos, Emile Le Grand, and others are opening out this new field to us. The Greek people during these days were not a nation of readers. The books read by the higher classes were chiefly theological, philosophical, and historical treatises. And the writers produced mostly books of these kinds. The commoner people read even less, of course. Still a book was with them a sacred possession. Such books as they had were mostly in manuscript. Printed books were scarce. It is interesting to note in the epistolary correspondence between Greeks sojourning in Europe and their friends at home that their friends are continually asking for books from Europe. Books most read by the common people were, the books of the church service; the Salvation of Sinners, *Αμαρτωλῶν Σωτηρία*; Bertoldi's Stories, *Ιστορία τοῦ Μπερτόλδι*; the *Χρονογράφος*; the writings of Damaskenos; the Erotokritos, and the history of Alexander the Great, *ἡ φυλλάδα τοῦ Μεγάλου Αλεξάνδρου*. These books could be found ready for sale in the ordinary shops where the ordinary necessaries of life, food, clothing, implements, etc., were for sale. They could be also copied to order by some scholar, or in some monastery.

The man who knew how to read and write was proud of his acquirements. He often carried in his belt ink, pen, and paper as insignia of his attainments. Also the child of the family that was picked out by its parents to become the scholar was an object of pride to parents and relatives. It was not an uncommon sight to see the little "*γραμματισμένος*" reading to his parents and brothers and sisters the wonderful stories of his *φυλλάδα*.

Illiteracy was more prevalent among the women than among the men. The fact that learning led chiefly to church preferments, and that learning was, after all, a masculine affair, prevented the establishment of schools for girls. Whatever of letters a girl learned she got from her own home or from some nunnery. Nunneries were quite numerous, and in them letters were not neglected. Parents often placed their daughters in these convents during their girlhood.

CONDITION OF EDUCATION FROM THE CLOSE OF THE WAR OF LIBERATION DOWN TO THE PRESENT TIME.

THE IONIAN ACADEMY.[1]

The Ionian Islands lie along the western shore of Greece. They passed out of Turkish into French control in 1797. The French retained possession of them for two years. From 1799 to 1815 they were under Russian suzerainty. Then they became an English possession, and remained such until 1864, when they were allowed to take their proper place and become a portion of the Greek Kingdom.

The successive owners of these islands all interested themselves in the matter of

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[1] *Βιογραφικὰ Ἱστορικὰ Ὑπομνήματα περὶ τοῦ Κόμητος Γυιλφόρδου. ὑπὸ* A. *Παπαδοπούλου Βρετοῦ. ἐν Ἀθήναις* 1846.

Περὶ τῆς ἐν ταῖς Ἰονίοις νήσοις ἐκπαιδεύσεως κτλ., ὑπὸ A. M. *Ἱδρωμένου* in the *Ἡμερολόγιον Ασωπίου* 1873, pp. 215–226.

Σημείωσις περὶ τῆς Ἰονίου Ἀκαδημίας ὑπὸ Σ. Κ. Σακελλαροπούλου in the *Δελτίον τῆς Ιστ. καὶ Εθν. Εταιρ.* I, pp. 263 ff.

La Coltura Ionia, by De Biasi, in La Rassegna Ellenica, Nos. 2–10.

public instruction. The French, in 1797, immediately took steps toward organizing a regular system of schools. They established elementary schools throughout the islands, and in the capital, Kerkyra, they founded a military school, a library, and a printing house.

The Russians, in their turn, patronized education. Under the Russians the islands were practically independent. The sovereign government was represented by a plenipotentiary. From this period we have two medals struck in Kerkyra in the year 1806 showing the zeal of the plenipotentiary and of the local government for the cause of education. These medals were intended as rewards to be given to diligent students. One was the gift of the senate of the Heptanesian state and the other the gift of the Plenipotentiary Mocenigo.

In the year 1808 an academy was founded at Kerkyra under great hopes and great enthusiasm. In the pompous announcement proclaiming the creation of the academy the modern methods of dating were discarded, and the year 1808–1809 indicated as the Six hundred and forty-seventh Olympiad.

This academy, though not destined to a long life, yet did some good work, and desired to do still better. In the Ἁγιος Ἑρμῆς of 1812 (pp. 193, 194) is published a set of questions which the academy sent out "to travelers and educated men, and especially to wise and educated Greeks." The questions are:

(1.) What and how many schools, libraries, and other such institutions intended for the education of the people have been established in the different parts of Greece since the fall of Constantinopol down to our own times?

(2.) What schools or kindred institutions have the Greeks established outside of Greece for the schooling and educating of their countrymen?

(3.) Are the printing establishments of Moschopolis, Jassy, and Bucharest the only ones in Greece? Is it true that there existed a printing establishment in Phanari of Constantinopol? How long did that printing establishment exist which was in the Patriarchate at Constantinopol during the war between France and Turkey?

(4.) Information is asked for concerning the life and the writings of such educated Greeks as flourished since the fall of Constantinopol. (See preface to Sathas's Νεοελληνικὴ Φιλολογία.)

In 1815 the English came into possession of the Seven Isles. England governed through a commissioner, or harmost. Of these harmosts, Thomas Maitland was one. He took special interest in the good progress of the islands. He set about establishing a new academy or college. He caused Count Guilford to be appointed rector. The new academy was formally established in 1828 at Kerkyra. (See Ἑβδομάς for September 7, 1886.)

Guilford was not only a Philhellene, but was also generous and good and scholarly. His motto was, La vertu est la seule noblesse. Knowing the lack of wealth that then, as always, afflicted Greece, τῇ Ἑλλάδι πενία σύντροφος αἰεί, he himself generously bore all the expenses of such young Greeks as would otherwise be unable to pursue their studies at the academy. He remained at the head of the academy until June of 1827. He died in October of the same year.

In the library of the building in which the academy was located is a bust of Guilford in marble of Carrara, the work of a native sculptor, Pavlos Prosalentes. It was made at the wish of the students, who thus desired to show their feelings of veneration toward their director. It was set up in 1826, while Guilford was still president. Another bust of this generous educator, the work of the sculptor Kalosgeros, has its place now in Athens among those of prominent men of modern Greece.

The students as well as the professors of the Ionian Academy, following the English custom, wore cap and gown.

This academy, useful as it was, became superfluous with the growth and equipment of the new university at Athens. Accordingly, it was finally converted into a gymnasion. The excellent library of the academy is still in the gymnasion.

On account of the important service rendered to the cause of education among the Greeks by the Ionian Academy, it will not be amiss to reproduce here a translation of one of its programmes. From this we can form a correct notion of the work done in that school. This programme is published in the original Greek in the Bulletin of the Historical and Ethnological Society (*Δελτίον τῆς Ἱστορικῆς καὶ Ἐθνολογικῆς Ἑταιρίας*, I, pp. 263–266). An original number of the programme is preserved in the archives of the society.

The programme was published under date of November 4, 1826, in Kerkyra.

IONIAN GOVERNMENT

IONIAN ACADEMY.

The Ephor of the Ionian Academy, Dr. Ioannes Karandenos, makes known that by order of his excellence the Archon of the Ionian Academy the studies for this scholastic year are arranged according to the following plan:

LIST OF STUDIES.

Theology.—Rev. Dr. Konstantinos Typaldos: Dogmatic theology, Tuesday and Thursday, 9 to 10 a. m.; also church history, Saturday, 9 to 10 a. m.; also sacred catechism, Monday, Wednesday, and Friday, 9 to 10 a. m.

Jurisprudence.—Dr. Paschales Karousos: Civil law, daily, 8 to 9 a. m.; also criminal law, daily, 5 to 6 p. m. Dr. Nikolaos Maniakes: National law, daily, 4 to 5 p. m.

Medicine.—Dr. Georgios Therianos: Pathology, daily, 10 to 11 a. m.; also physiology, daily, 9 to 10 a. m. Dr. Stylianos Maratos: Anatomy, daily, 11 to 12 a. m.

Philosophy. (Division A, sciences.)—Dr. Stylianos Spathes: Botany, daily, 12 to 1 p. m. Dr. Athanasios Polites: Experimental and theoretical chemistry, Wednesday and Saturday; on the remaining days of the week, theoretical chemistry only, 1 to 2 p. m. Dr. Ioannes Karandenos: Elements of mathematics, daily, 2 to 3 p. m. Dr. Georgios Ioannides: Philosophy, i. e., psychical anthropology and universal grammar, daily, 1 to 2 p. m.; also the principles of philosophy, or elementary philosophy and logic, daily, 9 to 10 a. m. Dr. Ioannes Aristeides: Ecclesiastical music, five times a week, 4 to 5 p. m.

(Division B, philology.)—Dr. Ioannes Aristeides: Rhetoric, four times a week, 3 to 4 p. m. Dr. Konstantinos Asopios: Greek philology, poetry, daily, 10 to 11 a. m.; also history of ancient Greece, daily, 12 to 1 p. m. Dr. Chrostophoros Philetas: Greek philology, prose, daily, 8 to 9 p. m. Dr. Iakobos Lousinianos: English philology, daily, 6 to 7 p. m.; also English language, daily, 8 to 9 a. m. Dr. Gaetanos Grassetes: Latin philology, daily, 11 to 12 a. m.; also history of ancient Rome, daily, 1 to 2 p. m. Dr. Nikolaos Maniakes: Modern history, daily, 2 to 3 p. m. Dr. Konstantinos Sakerlaropoulos: Greek archæology, lectures for the first session; history of the earliest ages of Greece, chronology, religion, political and private life of the ancient Greeks, Monday, Tuesday, Wednesday, Thursday, and Friday; Greek palæography, diplomatics, and epigraphy, Saturday, 6 to 7 p. m.

By order of the Ephor, Panagiotes Idromenos, chartophylax.

FORMATION AND GROWTH OF THE PRESENT SYSTEM OF EDUCATION IN GREECE.[1]

Inter arma silent Musæ. During the seven years' war for freedom the Greeks naturally could take but little care of education. We are astonished, however, to find them laying plans for an organized system of education, and to hear assemblies composed of klephtic warriors deliberating on where the schools should be established, and to find individuals, old men, priests, and others who were not fit for war, establishing little schools here and there. Yea, within the very Parthenon itself a school was opened in the year 1824 for little tots of girls whose fathers were fighting the war of freedom. We love the Parthenon for its beauty; but it is more worthy of being loved on account of having been a shelter to education than because of being the Parthenon. (See Τὸ *Παρθεναγωγεῖον τοῦ* 1824 *ἐν Ἀθήναις* in the *Ἑβδομάς* for October 24, 1887.)

But not all of these old heroes looked upon education as the best means of insuring their freedom forever. Old Kolokotrones said on a certain important occasion that "books could not be used for better purposes than for gun wads." We forgive him, because Kolokotrones's gunshots were intended to protect home and altar.

As early as the second year of the war the leaders made positive declarations in favor of education. In the Assembly at Astros, in the spring of 1823, they voted that "the education of the youth of the country be reduced to a regular system, and that the Government take steps to have the reciprocal method of teaching introduced throughout the country.

It is true that these declarations were not then put into practical execution. They show not what the Greeks of that time could do, but rather what they would do if they had the means. The Government was powerless to put its aspirations into execution. The war absorbed most of their active measures and resources.

Some of the Philhellenes that went to Greece at that time were as anxious as the Greeks themselves for the immediate systematizing of education. Leicester Stanhope, who arrived in Missolonghi in 1823, forthwith began to agitate the matter of education. In this he was at variance with his compatriot, Byron, who also was at Missolonghi at the same time. Byron wished that Greece first acquire a certain amount of independent existence by means of arms, and that she then turn to education. Stanhope, however, immediately began to put his philosophical plans into execution. (See Greece in 1823 and 1824, being a series of letters and other documents on the Greek revolution by the Hon. Leicester Stanhope. Philadelphia, 1825.) He was a disciple of Jeremy Bentham. He established a newspaper at Missolonghi, published

[1] *Φιλίππου Ἰωάννου Ὀλυμπιακὸς λόγος περὶ πνευματικῆς προόδου τῶν νεωτέρων Ἑλλήνων. ἐν Ἀθήναις*, 1871.

P. Johannis, Public instruction in modern Greece (Am. Journ. of Education, v, 12 (1862), pp. 571 ff.)

Δοκίμιον Πρακτικῶν ὁδηγιῶν πρὸς τοὺς διδασκάλους τῶν Δημοτικῶν Σχολείων. ὑπὸ Γ. Γ. Παπαδοπούλου ἐν Ἀθήναις, 1865.

Κ. Ξανθοπούλου περὶ Μέσης καὶ Κατωτέρας Παιδείας· ἐν Ἀθήναις, 1878.

Περὶ διδασκαλίας τῆς Ἑλληνικῆς γλώσσης, ὑπὸ M. *Βεργωτῆ· ἐν Ἀθήναις*, 1872.

Περὶ μέσης καὶ κατωτέρας παιδειας, ὑπὸ M. *Βεργωτῆ. ἐν Ἀθήναις*, 1872.

Ἡ διδασκαλία τῆς Ἑλληνικῆς γλώσσης ἐν τοῖς δημοτικοῖς καὶ Ἑλληνικοῖς σχολείοις καὶ γυμνασίοις τῆς Ἑλλάδος. ὑπὸ Σ. Ξανθοπούλου. ἐν Ἀθήναις, 1875.

Τὸ Θεσμολόγιον τῆς δημοτικῆς ἐκπαιδεύσεως, ὑπὸ Γεωργίου Βενθύλου. ἐν Ἀθήναις. 1884–1892.

Eine Musterschule zu Athen (in the Berliner Philologische Wochenschrift, 1884, pp. 31–32).

Ἐκδρομῆς Ἀπομνημονεύματα εἰς Εὔβοιαν καὶ Σκύρον, ὑπὸ M. *Ι. Βρατσάνου πρώην διευθυντοῦ τοῦ ἐν Ἀθήναις διδασκαλείου. ἐν Ἀθήναις.*

Γυμναστικὴ Παιδαγωγικὴ. ὑπὸ Ι. Πανταζίδου. ἐν Ἀθήναις, 1889.

Education in Italy and Greece (Department of Interior, Bureau of Education, Washington), from an article in the Hamburger Correspondent by J. Pio.)

in Greek and Italian, and edited by Dr. Meyer, a Swiss Philhellene. The motto of the paper was Bentham's saying, "The greatest good of the greatest number." Not only did Stanhope establish this paper and endeavor to establish others in other parts of the country, but he also endeavored to establish schools. These he wished to be conducted on the Lancasterian, or reciprocal plan. But neither Hellenes nor Philhellenes succeeded in establishing a school system at that early date.

That scholarly youths of the best type were not scarce among the Greeks at the beginning of the war is shown by the fact of the formation of the Sacred Band, the Ἱερὸς Λόχος, made up of five hundred students. They wore a uniform of black, and on their standard was the old Spartan motto ἢ τὰν ἢ ἐπὶ τὰν. These five hundred brave boys rallied to the secret call of Prince Alexander Ypsilantis and the Φιλικὴ Ἑταιρία. Some of them were in Gennadios's school at Bucharest. Gennadios was in the midst of his lecture when a messenger rushed into the room with the news that Ypsilantis had passed the Pruth. He threw his books into the fire of the open grate, and rushed off, followed by his students, to join the prince. The young soldiers of the Sacred Band were true to their Spartan motto, and on the 19th of June, 1821, four hundred of them lay as a first holocaust to liberty, dead in their blood on the hill slope of Dragachan.[1]

In the year 1824 the determination to establish a system of education became manifest again. A committee of five, appointed for the purpose, submitted to the Government a plan which provided for the establishment of three sets of schools. The first and lowest set was to comprise elementary and popular education; the second consisted of lyceums, and the third was to contain at least a university. The committee then went on to state that since it was impossible to put the entire system into operation at that time, the Government should give most of its attention to that part which was the most important, primary education, and that in the primary schools the reciprocal system should be employed because of its inexpensiveness; and that a model or central school should be at once established at Argos. The school at Argos was established, with Gennadios as director. But the vicissitudes of war soon interfered, and the school was closed.

After a small quotum of peace came to Greece, and a formal government had been established under Kapodistrias, the school question came up again. Kapodistrias was not at all an advocate of higher education, but favored primary and intermediate. Yet those that impatiently longed for the establishing of an organized system of education had placed high hopes in Kapodistrias. He had been a member of the Philo-Muse Society. He was on intimate terms with many educators of Europe. Among his acquaintances was the celebrated Fellenberg, whose didactic methods Kapodistrias contemplated introducing into Greece, and with this end in view he carried on negotiations in Munich, which resulted in Bader's coming to Greece to undertake the organization of the school system and to introduce Fellenberg's methods. The project, however, did not bear much fruit, and the advocates of learning soon discovered that they would have to push Kapodistrias in this matter instead of being led by him.

So the people at large did not wait for the Government to act. In the year 1828 from the 1st of February to the 1st of May, i. e., within the short space of three months, twenty-two reciprocal schools were established in the towns on the islands of the Ægean, and with no expense whatsoever to the General Government, but solely at the cost of the communities themselves.

From this time on schools multiplied rapidly. According to a report published in the Spectateur de l'Orient for August 22, 1854, 15,000 children were attending school in the year 1829. To appreciate the significance of these figures we must note that the population of Greece then was, according to the same report, only 693,000. This gives 46 pupils for every 1,000 inhabitants. And this was in the year just after the close of the war.

[1] Dragachan was a monastery a few miles distant from Rimnik, in Wallachia.

In 1830 Kokkones, the minister of education, published a report under date of December 30, stating that the number of primary and Hellenic schools then in operation was, in the Peloponnesos 55, in North Greece (Στερεὰ Ἑλλάς) 6, and in the islands 48. These schools were attended by 9,737 pupils. (See Bartholdi-Blachos, II, p. 85.)

Kapodistrias's indifference or rather dislike toward institutions of higher learning was partly due to the fact that he thought the universities of Europe to be hotbeds of revolution. And having been trained in the court of Russia he could have but little sympathy for institutions that would in any way foster too much liberty. His friend and most acceptable adviser in this matter, Alexander Stourtza, held the same views. In the year 1818 Stourtza had published in French a memoir on the present condition of Germany, in which he vigorously attacked the German universities as being seminaries of revolutionary ideas, and advocated the placing of all higher education in the hands of the clergy. Stourtza and Kapodistrias had many a cosy talk over the uselessness and harmfulness of universities. (For a good panegyrical account of Stourtza's life, see Ἀλέξανδρος ὁ Στούρτζας. *βιογραφικὸν σχεδίασμα ὑπὸ Κωνσταντίνου τοῦ ἐξ Οἰκονόμων.* Ἀθήνησι, 1855.)

Kapodistrias had the ill fortune to be disliked not only by many of the educators, but also by the students of the only important gymnasion, that of Ægina, which Kapodistrias allowed to be founded. The students of this central gymnasion openly rebelled in 1831, directly indeed against Mystoxydes and the method of teaching and discipline employed in the school, but indirectly against Kapodistrias himself. How great their antipathy toward him was showed itself on the occasion of his violent death a few months later. They gathered together and sang the song commemorative of the assassination of the Athenian tyrant by Harmodios and Aristogeiton, which the youth of the old Republic of Athens used to sing in classic days:

"Ἐν μύρτου κλαδὶ τὸ ξίφος φορήσω."

Mystoxides, mentioned above, was earnest and active in the cause of education. He was one of Kapodistrias's nearest friends. The Government established a library, an archæological museum, and a museum of mineralogy. Over all of these Mystoxides was placed as president.

During the vice-regency which governed while the young King Otho was in his minority the affairs of education, as all the other important public affairs, were managed by the Bavarian officeholders who had followed Otho to Greece. In order to insure the appointment of fit teachers two committees were appointed, one to sit at Navplion and the other in Ægina, to examine all candidates for the position of teacher in a gymnasium or other public school. But not a single person presented himself before these committees. This lack of applicants was chiefly due to the fact that from the very beginning a strong feeling of dislike to be examined by foreigners, and subservient in all details to foreigners, began to show itself. The unwieldy inadaptability of the German examiners and professors tended to heighten this dislike. The unhappy result was the retirement of some of the Germans after a short period of troublous but highly beneficial work in the newly established school system.

This brings us to a point where we can treat of the different kinds of schools separately.

DEMOTIC SCHOOLS.[1]

(Δημοτικὰ Σχολεῖα.)

In January, 1829, Kapodistrias appointed a committee on elementary education, and to this committee he intrusted the duty of organizing and establishing a system of primary schools. This committee (*ἡ ἐπὶ τῆς Προπαιδείας Ἐπιτροπή*) gave the demotic

[1] See *Θεσμολόγιον τῆς Δημοτικῆς Ἐκπαιδεύσεως ὑπὸ Γεωργίου Βενθύλου. ἐν Ἀθήναις* 1884–1887.

schools the character which they still retain. Kapodistrias himself took great interest in these lower schools. Often he visited them, and spent hours in examining the little fustanelled hopefuls in the alphabet, syllabification, etc. (See Τὸ Ταμεῖον τῆς Δημοτικῆς Παιδείας in the Ἑβδομάς for October 26, 1886.)

In 1834 laws were enacted prescribing in detail how demotic schools are to be established and conducted. They were modeled chiefly after elementary French schools, and are therefore an exception in the system, for all the other schools are after German models.

In the demotic schools the course extends over a period of four years. The studies are the same for boys and for girls. When the number of children that should attend a demotic school is greater than 75, then two teachers are appointed, a man for the boys and a woman for the girls. But when the total number is less than 75, there is then but one teacher, a man, who teaches both boys and girls. When boys and girls have different teachers, then the two schools are usually not under the same roof but in different buildings, and at times in different parts of the town. Children are supposed to begin in the demotic schools at the age of 6 and to attend till the age of 10 completed.

The entire country is quite well supplied with demotic schools. It is almost impossible to find a village of any size which has not at least one demotic school where both boys and girls attend. Melingo, in his Griechenland in Unseren Tagen (Wien, 1893), gives the number of these schools as being about 1,600. This makes one school for about 1,400 inhabitants, a proportion which, as Melingo remarks, compares favorably with the proportion of elementary schools in the Austro-Hungarian Empire. It is easy to understand that in out of the way places these schools are miserably kept. For example of such a school see Ἑβδομάς for June 2, 1890, in the article Σχολεῖον καὶ διδασκαλεῖον. The school there described was most carelessly kept, filthy and unventilated.

Attendance at the demotic schools is obligatory by law. No parents or guardians are legally excused from giving the children under their charge this elementary education. However, instead of sending their children to the public schools, they may send them to private schools of the same standing. This law making primary education compulsory dates back to the year 1834. Since education is compulsory it naturally follows that it is imparted free of cost. It is delightful to remember that this decree for free elementary instruction to all dates back to a decree of the first constitution of Epidavros, while Greece was merely a desert through the devastations of war.

The little children make a pleasing impression on the stranger. They are bright and diligent. They learn with greatest ease. They are obedient and respectful.

They are examined twice a year, in February and during the first two weeks of July. However, when in country places the gathering of the raisins or the harvesting of grain interferes with the attendance of the children at school, then the teacher may transfer the examinations to a later time, but must inform the minister of education concerning the change. These examinations are quite formal affairs, especially the July ones. A committee of five is appointed by the local representative of the Government. The committee always includes the scholarch of the Hellenic school or, at least a teacher from the Hellenic school, and one of the most learned priests of the locality. (For an accurate and delightful description of examinations in a village school see Demetrios Bikelas's Τὸ Σχολεῖον τοῦ χωρίου in his Διαλέξεις καὶ Ἀναμνήσεις, pp. 92-99.) At the close of these July examinations the summer holidays begin. But for the demotic schools the vacation lasts only twenty days.

The teachers in the demotic schools, the δημοδιδάσκαλοι, are appointed directly by the minister of education. Most appointments depend on the political worth of the friends of the candidate. The appointments are made annually. The community to which a teacher is to be sent has little or no direct control over the appointment. Still the local politicians keep to their local teachers as a rule. In a word, although a teacher never knows where he will be next year, yet many of them remain in the

same school for years. Professor Manatt, of Brown University, (see Behind Hymettus, by J. Irving Manatt, in the Atlantic Monthly for May, 1894) met a fine specimen of teacher in Spata of Attica, who had taught there for twenty-five years.

METHOD OF INSTRUCTION.

The details of the method of instruction in these schools are contained in the famous Ὁδηγός, or Teacher's Guide, published for the first time in Ægina in 1830, and since then repeatedly republished with modifications. It was a translation from the French, and bore the title Ἐγχειρίδιον διὰ τὰ ἀλληλοδιδακτικὰ σχολεῖα, ἢ ὁδηγὸς τῆς ἀλληλοδιδακτικῆς μεθόδου ὑπὸ Σαραζίνου διευθυντοῦ τοῦ ἐν Παρισίοις Προτύπου σχολείου * * * κατ' ἐπίκρισιν τῆς κυβερνήσεως μεταφρασθὲν μεθηρμοσμένον. ἐν Αἰγίνῃ, 1830; ὑπὸ I. P. Κοκκονη.

The method prescribed in this guide is the reciprocal or Lancasterian. It owes this second name to one of its inventors, Joseph Lancaster, of England (1778–1838). It has for its main feature the fact that the older pupils act as instructors for the younger. The Greeks took kindly to the system on account of its inexpensiveness. The first Greek to be attracted to the system in its Western form was G. Kleopoulos, who became acquainted with it while studying pedagogics in Switzerland. In 1820 he published a description of the system, recommending it to his countrymen. His brochure, Ἐκθεσις περὶ τῆς Ἀλληλοδιδακτικῆς Μεθόδου, appeared at Jassy in 1820. The method was at once introduced into the Greek schools of Jassy and Bucharest. (See Rangabe und Sanders Geschichte de Neugriechischen Litteratur, p. 25.)

About the same time Ath. Polites introduced it into the Ionian Islands, and Christophoros Perraebos established a school at Doli in the Peloponnesos.

This reciprocal method continues in use even yet in country schools; but the system is no longer in favor, and the teachers have found it best to assume to themselves all the obligations of directly imparting instruction to all their pupils, both beginners and more advanced.

SCHOOL IN THE OPEN AIR.

In many places the school buildings are inexcusably ill-looking. Often the school consists of a single small room, and sometimes it contains no teaching apparatus whatsoever. Few communities own school buildings, and it is not always the most commodious and pleasant quarters that the committee rents.

On this account, as well as on account of the love which the Greek has for the open air when the weather is fine, teachers in the smaller towns often hold school out of doors, under some large tree or in some other shady place. Mr. D. Kaprales, in his book Ἀνὰ τὰ Ὄρη (p. 74), describes such a school in a small village not far from Patras. "On account of the excessive heat, the village schoolmaster holds session under the shade of a plane tree. Thirty little lads, each with a sack full of booklets at his side, sit on long benches. They con in silence their lessons, accompanied by the sweet susurrus of the mountain breeze. * * * Some of them, as punishment for having been at fault the day before, kneel while listening to the master's teaching. While others failing in their recitations are soundly switched, the master accompanying his action with the adage 'the rod is a gift of God,' as though it were an incantation."

Sometimes the number of pupils in the small schoolrooms is much too large for the room, and accordingly it is certainly a relief both to teacher and to pupils to escape into the open air.

As an illustration of how many pupils are in some country schools, a school for the little girls in the village of Limne in Eubœa may be taken as an instance. Mr. G. Paraskevopoulos visited it in 1893, and mentions it in his Ταξεῖδι ἀνὰ τὴν Ἑλλάδα. He found that one woman teacher had 110 children under her charge. Had not the tidiness and cleanliness of the old schoolroom as well as the children immediately

impressed him, he would have expected to find but poor results. As it was, however, he was astonished at how the little girls could read. For lack of benches many of them had to sit on the floor.

The following table shows the matter taught in the demotic schools, and the number of hours per week devoted to each study, for each of the four years. (See *Στοιχειώδεις πρακτικαὶ ὁδηγίαι τῆς διδασκαλίας τῶν μαθημάτων ἐν τοῖς δημοτικοῖς σχολείοις ὑπὸ* Δ. Γ. *Πετρίδου. ἐν Ἀθήναις*, 1880; in the *Θεσμολόγιον*, p. 140.)

Matter taught.	Number of hours per week.			
	First year.	Second year.	Third year.	Fourth year.
Religious instruction (sacred history, catechism, reading of selections from Holy Scriptures)	3	3	3	
Greek (object lessons, reading, writing, grammar)	12	12	12	12
Arithmetic and geometric forms	5	5	5	5
Drawing	.....	.....	3	3
Simple natural history, taught chiefly under the heading of Greek in the object lessons and in the reading books.				
Geography	.....	.....	3	3
Greek history	.....	.....	2	3
Vocal music	2	.....	2	2
Gymnastics	.....	2	2	2
Total number of hours per week	22	22	32	33

EXPENSE OF SCHOOL BOOKS.

In all schools the pupils furnish their own books. These are not expensive. They are usually unbound, and cost from a few pennies to about 50 cents each. Yet many a parent finds it difficult to provide them. Accordingly in some places books are furnished free by some plan or other. Thus in the island of Pholegandros, where the people, although very simple, take a high interest in their schools—and they have both a demotic and a Hellenic—books are supplied to the children at the expense of the Pholegandrian Brotherhood, a society existing in Constantinopol and made up of Pholegandrians temporarily living in that city for the sake of employment. The sole object of the society almost is to foster education. Think of it. And all of its members are day laborers. They contribute to the maintaining and improving of the schools in their island home, from which they are separated for a time by self-imposed exile, keep the school buildings in repair, supply maps, teaching apparatus, and books, etc. (See *Φολέγανδρος, ὑπὸ Ζαφειρίου Γαβαλα* in the *Δελτ. τῆς Ἱστ. κ. Ἐθν. Ἑταιρ.* Vol. II, pp. 503–504.)

PRAYERS IN SCHOOL.

Each half-day's work in school begins and ends with prayer. The pupils all stand up and make the sign of the Cross three times. Then the teacher or one of the older pupils pronounces the prayers, which are always the same, namely, in the morning the *Βασιλεῦ Οὐράνιε* and *Κύριε τὸ πανάγιόν σου Πνεῦμα*, before the noon recess, the Our Father, the *τὴν πᾶσαν ἐλπίδα σου, δι' εὐχῶν*, and sometimes a hymn. In the afternoon the session is opened with the *Δόξα Σοι ὦ Θεὸς ἡμῶν δόξα σοι*, and the *Κύριε ὁ Θεὸς ἡμῶν τῆς ἀληθοῦς σοφίας*, and at the close of the day's studies they recite the *Δεῦτε προσκυνήσωμεν*, the *Εὐχαριστοῦμέν σοι Κύριε καὶ Θεέ* and sometimes they sing a hymn.

A, B, C SCHOOLS.

(Γραμματοσχολεῖα.)

In small hamlets where it is impossible to support a demotic school, and yet the place is too remote for the children to attend the nearest demotic school, it is permitted to establish a *γραμματοσχολεῖον* or A, B, C school. The teacher in a grammatoscholeion need have no special preparation for teaching. It is sufficient that he be

that had studied in the gymnasia, and an examining committee was appointed before which candidates for these positions of teachers might appear.

But in 1876 it was deemed expedient to re-establish the teachers' school. It began to operate September 24 of that year.

THE GYMNASIA.

(Τα Γυμνάσια.)

The first gymnasium in Greece was the "Central School," the Κεντρικὸν Σχολεῖον, founded in Ægina on the 13th of November, 1829. It was intended to be a model for all other gymnasia throughout the kingdom. The first years of the school, however, were not entirely successful. The discipline was monastically rigid. The teachers were under governmental surveillance. The freedom which successful teaching demands was wanting. These defects, however, passed away with Kapodistrias.

As with the Hellenic schools, so also with the gymnasia, their founders and organizers aimed at introducing a faithful copy of the German schools. The gymnasia were modeled especially after the gymnasia of Bavaria.

In 1837, when the university was opened, there were four gymnasia successfully operating. The number rapidly grew, and at present there is a gymnasium in every town of sufficient size to justify the Government in establishing it. In the larger cities, such as Athens, Patras, etc., there are more than one, according to the population.

Some gymnasia do not offer the complete course of four years, the two upper classes being wanting. These are called gymnasia of the second class. Those in which the full course is given are gymnasia of the first class.

Each gymnasium is managed by its own faculty. At the head of the faculty is the gymnasiarch, γυμνασιάρχης. The gymnasiarch is himself one of the teaching body of the gymnasium. However, he has the right and duty of overseeing the work of the other professors and of directing it in some measure.

The details in the teaching of the gymnasia are provided for by regulations of the department of education. There exists a general schedule or programme of studies which is to serve as a model for the yearly programmes of the individual schools. The department of education, from time to time as occasions call for such, publishes explanations or interpretations of such parts of the general programme as seem to need such additional illustration. A general programme was officially published as early as 1855. In 1867 a new programme was made and the old one annulled. Again, in 1884, a new programme was issued in June of that year. The programme of 1884 is still in force. These programmes determine the studies to be taught in the Hellenic schools as well as in the gymnasia. Although the gymnasia all follow the same general programme, and are from a material point of view provided for in about the same way, yet all do not produce equally good results. This is due to the accidental efficiency or inefficiency of the several teachers that make up the corps of instruction, to the quality and previous training of the students, their occupation, mode of life, etc.

The gymnasia are generally supported by the State; but in places where the population is not sufficiently large to justify the State in expending money for their support, the people of the community sometimes support one for themselves, paying the expenses in some ingenious way. For instance, the town of Nesion, in Messenia, not being favored by the Government with a gymnasium, its inhabitants were in the year 1896 supporting one by a voluntary tax, levied and collected by themselves of 1 centime (λεπτόν) on each oke of grapes or figs produced in their fields. (See Paraskevopoulos in his Ταξείδι.)

The physical sciences are taught, indeed, but in a very defective way. The gymnasia are classical schools, and the physical sciences are taught, not as having any prime importance, but as merely being worth some slight attention. This is, perhaps, due to the fact that the really great importance of classic education in Greece over-

shadows the high claims that the physical sciences have on modern education. The schools lack apparatus. Yet improvement should come, because these branches are now being taught by men that have won their doctorate in the physical sciences, and are therefore both capable teachers and interested in the progress of their specialty.

In the gymnasia of Athens, Patras, and other larger towns, the students wear a special dress or uniform of cadet-like appearance; in the smaller towns, however, no such luxury is to be seen. In these small towns many a young aspirant to letters still wears the national fustanella. It is a pity that all do not do so.

In order to seize the advantages of an education the hardy young Greeks, especially of the provinces, often endure hardships that would make us shiver. The writer once visited four brave lads that were staying in Sparta for the winter in order to attend the gymnasion there, as their own native *χωριό* had none. They had rented a small house consisting of one room with the ground for floor. He came in upon them as they were at dinner. The only food they had was a pot of maccaroni, cooked by themselves. Other than the four young heroes the only bright thing in that room was the little stack of books they took bashful pride in showing to him.

In the gymnasial course the study of philosophy is prominently included. The course includes logic, anthropology, psychology, and ethics. But these studies seem to be somewhat superficially taught. At least this is the opinion of Mr. I. Argyriades, who, in a report to the ministry of education (*Ἔκθεσις πρὸς τὸ Ὑπουργεῖον τῆς Παιδείας περὶ τῶν ἐν Ἀθήναις Γυμνασίων καὶ Ἑλληνικῶν Σχολείων*, p. 26), vigorously attacks the defects in the way in which philosophy is taught, and his complaints are warmly supported by Pantazides in his Pedagogics (*Παιδαγωγική*, pp. 31, 32.)

Since Greek is the vernacular language, it naturally holds a most prominent place in the curricula of the gymnasia. The young student comes to the gymnasium able to read and understand the simpler writings of his classic forefathers, such as the Dialogues of the Dead, or the Anabasis, or the more simple dialogues of Platon. He has mastered all of the Attic grammar save syntax, and he has spent at least a year at that, for he began it in the third year of the hellenikon. He is also able to write simple themes in the ancient language, and is able to paraphrase with wonderful mechanical accuracy from the ancient into the katharevousa. True, he has not had the gigantic difficulties to overcome that are sufficient to hinder youths of other countries from mastering ancient Greek. For him it is merely the learning of a different variety of his own vernacular. The intelligent young Greek is never at a loss to understand good Hellenic, although he may be amused by it. However, if in one lesson the teacher employs what he thinks to be a specially Attic word or phrase he is not surprised if his pupils use it back at him in the next lesson.

In the gymnasion the student reads not only the more difficult prose authors, such as Herodotos and Thukydides, but also the poets. He reads, and, from a grammatical standpoint, analyzes into shreds select dramas of Sophokles and Euripides. He reads the language of the poets not by quantity, as we say, but by accent—that is, he pronounces the words as he does when reading prose. He learns to scan also, but neither his teacher nor he have any liking for the process. His knowledge of prosody does not lead him beyond the ability to scan a dactylic or an iambic line.

The young boys enter the gymnasion with little preparation in Latin. On account of the greater importance of the classic Greek the Latin is liable to be slighted. At least to us in the west who regard Latin as equal in importance with Greek, it seems that Latin is underrated in the Greek gymnasia. (See Die Stellung des Latein in den Höhern Schulen Neugriechenlands. In the Berliner Philologische Wochenschrift, 1884 S., 31-32.) But after all we are liable to be prejudiced critics on the one side, as the Greeks themselves are likely prejudiced on the other side.

With a six months' training in Latin in the hellenikon, he comes to the gymnasion and takes up the following courses:

First year: Latin accidents, a Latin reader, Nepos.

Second year: Syntax, Cæsar.

Third year; Syntax, composition, Livy, Cæsar.

Fourth year: Composition, Vergil, Horace, and something in prose; e. g., pro Milone or the Agricola of Tacitus.

Of the modern languages, French is the only one that is obligatory in the gymnasion. Among educators are to be found some that desire to have German placed among the obligatory studies. But they have not been strong enough to succeed. German, indeed, is taught as an optional course. In some of the larger gymnasia English is also taught as an optional study. Although a four years' course in French is provided for, yet it is not seriously studied. Few of the students at the end of the four years are able to more than simply read it, and that faultily, notwithstanding the fact that the Greeks learn languages with great ease.

Mathematics are always taught by specialists. Accordingly, the instruction given is good. Yet the course is very weak. In pure mathematics the highest studies are algebra, geometry, and trigonometry.

In the university there is no chair of geography; so it is to be expected that this study in the gymnasia is not a success. Being taught by teachers who themselves have not studied it, no scientific enthusiasm either on part of teacher or student can be expected. Another difficulty in geography comes from the Greek language. The modern Greek is poor in sounds. It is not easy to transliterate into Greek the names of places, etc., met with in the study of geography. There is ever present the difficulty of putting such names as London, Massachusetts, Maryland, into intelligible forms with Greek letters. As yet there is no fixed practice. But such names as Rome, Switzerland, France, are represented by their ancient forms, Ρώμη, Ἑλβετία, Γαλλία. A few names are translated, as Τὰ Λευκὰ Ὄρη, Αἱ Ἡνωμέναι Πολιτεῖαι for "the White Mountains," "the United States." Other names again are either spelled in Latin letters and pronounced as the names are pronounced in their native country, or are transferred into Greekish form, as Ἀλιφάξη, Μιλβόκη, for Halifax, Milwaukee. (See Γεωγραφία Φυσική καὶ Πολιτική, ὑπὸ Μαργαρίτου Γ. Δήμιτσα. ἐν Ἀθήναις.)

Another drawback in the teaching of geography is the lack of apparatus. Until of late even wall maps of Greece itself with the names of the places in Greek were not to be found in the schools. Now, however, thanks to the efforts of the Society for the Diffusion of Greek Letters (Ἑταιρεία πρὸς Διάδοσιν τῶν Ἑλληνικῶν Γραμμάτων) and to the generosity of a rich Greek, Mr. Zapheiropoulos, simple geographical apparatus is not such a rarity as it was some years ago. The society has taken steps to fit out the schools with useful apparatus for different branches, and Mr. Zapheiropoulus has borne the expense of publishing a number of excellent maps.

History is taught during all of the four years according to the following schedule:

First year: Greek history from its beginnings down to the time of Alexander, preceded by an introduction, treating of the different peoples of the East with whom the early Greeks came into contact.

Second year: Roman and Byzantine history down to the capture of Constantinopol by the Franks in 1204.

Third year: History of the Middle Ages, and modern history down to the treaty of Vienna.

Fourth year: Greek history down to the appointment of Kapodistrias as governor of Greece.

Of the natural sciences several are taught, but the time devoted to each is necessarily short. Still it is better, perhaps, to give a certain general knowledge of the principles of a number of these sciences than to devote all the disposable time to one or two exclusively. Whoever wishes to pursue any one of them as a specialty will find his opportunity in the university or in the Polytechnic Institute.

The general programme of 1884 orders a course of natural sciences as follows:

First year: Zoology, two hours a week.

Second year: Botany, geology, mineralogy, two hours a week.

Third year: Experimental physics, two hours a week.

Fourth year: Chemistry and cosmography, two hours a week.

THE SCHOLASTIC YEAR.

In the gymnasia the school year begins with the first week of September, and continues, with a short break at Christmas and a week at Easter, until the end of July. But the entire month of September is consumed in examining new applicants for admission, and the entire last month is occupied with the annual and final examinations. Accordingly there are but nine months of regular instruction, and even of these nine months the last one is given over to repetitions, etc., in preparation for the examinations, and is therefore almost lost so far as education is concerned. There remains then but eight months of real instructive teaching.

EXAMINATIONS.

In the gymnasia the following examinations take place:

In the month of September there are examinations for such new applicants as have no regular dimissorial (*απολυτήριον*) or certificate stating that they have finished a course in the hellenikon; also examinations for all who having failed at the examinations for promotion in the preceding July were accorded the privilege of presenting themselves again in September.

In January written examinations are held in all branches.

In July the regular annual oral examinations are held in order to discover who are worthy of promotion and who are not. No promotions are made in midyear. It is wrong to allow promotion to depend, not on the work of the year but on the annual examinations; but the Greeks are not the only ones that make this mistake. At the end of the year also are held the examinations of those that have finished their gymnasial studies and wish to procure a dimissorial (*απολυτήριον*) or certificate for the university. These dimissorial examinations do not cover the matter of four years of the gymnasion course, but merely the matter of the last year.

DISCIPLINE—MODES OF PUNISHMENT.

What we said of the pupils of the lower schools, that they are diligent and well behaved, can also be said of the average student of the gymnasion, though not with the same emphasis.

The punishment with the rod, although a favorite one with the Greek schoolmaster, is forbidden by positive orders of the ministry of education, under date of December 12, 1848. In spite of this law, however, the teachers in the lower schools still use the rod, but the teachers in the gymnasia have long since discarded it.

Expulsion (*αποβολή*) from the gymnasion is inflicted when milder remedies fail. According to the law, sentence of expulsion can be passed on a student only by vote of a majority of the professors in the school. This decision of the corps of teachers can not be revoked even by the minister of education.

When a student is found guilty of some greater crime, he may not only be expelled from his own gymnasion, but also be punished by "exclusion," *αποκλεισμός*, from all other gymnasia of the kingdom. This punishment can be inflicted only by the cooperation of the professors and the local representative of the civil government. The student thus punished can appeal to the minister of education against the sentence.

SCHOOLS FOR GIRLS.

The Greeks have not been so prompt in caring for the intellectual training of their daughters as for that of their sons; yet they have never looked on education as unbecoming or even useless to a woman. We have already seen that in the year 1824, almost immediately after the battles of Marathon and Kalamos, which brought the first fresh breath of freedom to the Athenians, a school for girls was opened in the Parthenon.

Years passed, however, before the Greeks could provide any public system of education for girls higher than what they could learn in the demotic schools.

The first school in which girls could receive more than the mere elements of learning was established in Athens by two Americans, Dr. and Mrs. Hill.

But the Arsakeion (Τὸ *Αρσάκειον*), which is now perhaps the best school for young ladies, can also boast of quite an early origin. It was founded in July, 1836. It takes its name from its greatest benefactor, Apostolos Arsakes. This same munificent patriot has also founded similar schools elsewhere.

The Arsakeion in Athens, and a number of similar young ladies' schools, *παρθεναγωγεῖα*, in other cities of Greece, were the result of the endeavors of a number of men, who associated themselves together under the name of the Society of the Promoters of Education, *Φιλεκπαιδευτικὴ Ἑταιρεία*.

These determined men began without means. They sent out appeals to various rich Greeks, and Arsakes responded.

The course of studies in the Arsakeion is on a par with that of the gymnasia for boys,[1] and graduates of this school now have the privilege of becoming university students.

The Arsakeion does good especially by preparing teachers for the elementary schools for girls.

PRIVATE SCHOOLS FOR GIRLS.

Such parents as can afford it have a strong inclination to send their children not to the public schools, but to schools in which the pupils receive more parental care than can be given to them in the public institutions. There are accordingly many such private schools of all grades, whether for boys or for girls, throughout all of Greece. As a sample of a parthenagogeion, or young ladies' school under private management, we take one in Athens under the direction of Miss Aspasia Blasiou Skordele. (See *Κανονισμὸς τοῦ Ἑλληνικοῦ Παρθεναγωγείου Σοφίας Σιμοπούλου καὶ Ασπασίας Βλ. Σκορδέλη ἐν Ἀθήναις*, 1891.)

This educated and refined lady takes her love of the art and practice of teaching from her father, Blasios Skordeles, who has made a study of education all his life, is most thoroughly acquainted with the condition of primary and middle education in Greece, and has written valuable works for the use of teachers and scholars.

Lady Skordele studied in the Arsakeion. Her teacher in pedagogics there was her own very competent father.

Ten years ago this academy was founded. It contains three separate departments, a kindergarten, a demotic school, and a high school, which includes the classes of a Hellenic school and the two lower classes of a gymnasion. There is also an extra course of two years more for such as are preparing themselves for teaching.

Lady Skordele does not object to the principle of women pursuing higher studies and devoting themselves to special sciences, but yet thinks that Greece has at present more need of competent housekeepers and intelligent wives and mothers than of scientific women. For this reason this school does not profess to prepare young ladies for the university.

The kindergarten is intended for children of from 4 to 6 years of age. The system followed is the Froebelian.

The course given in the demotic school extends over the regular four years. The matter taught during this period is as follows:

Religion, portions of the Old and New Testament; modern Greek language; reading, grammar, declamation; learning by memory of select pieces in prose and verse; composition; arithmetic, applied to problems taken from such experience as children have; leading events in national history, taught mostly by biographers; description of Greece, together with general geography and map drawing; simple lessons in the natural sciences and in art; French, compulsory; drawing, caligraphy, hand work, vocal music, gymnastics.

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[1] See course of studies in the *Ὀργανισμὸς τοῦ Αρσακείου Παρθεναγωγείου*.

The course in the high school extends over six years. It embraces catechism, explanation of the ceremonies of the church, principal events in church history; ancient Greek, with grammar, including syntax, composition in modern Greek; Greek history, Roman history, portions of universal history; geography and cosmography; arithmetic and the elements of geometry; elements of natural history, anthropology, experimental physics, and chemistry; elementary knowledge of Greek art and literature; domestic economy, domestic pedagogy, and the elements of hygiene; French and conversation in French, German and English optional; sketching, vocal music, gymnastics, hand work, cutting and sewing, painting, molding in clay; piano and dancing are optional and at extra charges.

Pupils may attend as interns (*τρόφιμοι*), or as half boarders (*ἡμιτρόφιμοι*), or as day scholars (*ἐξωτερικαί*).

Tuition for interns is 1,400 drachmas a year; for half boarders, 20 drachmas a month in addition to what they would pay as day scholars, and for day scholars the tuition varies from 7 to 35 drachmas a month, according to the class the pupil is enrolled in.

The half boarders take dinner in the school. The number of pupils is from 200 to 240 each year.

Last year, 1896-97, the teaching body consisted of twelve women teachers and ten men professors. The professors teach such branches as the women teachers are not prepared to teach.

THE UNIVERSITY.[1]

(Τὸ Πανεπιστήμιον.)

Since the sixth century, when Justinian closed the philosophical schools of Athens, down to the nineteenth there was little of higher education in Athens. The city of the goddess of wisdom, where once triumphed art and letters and science, had become so insignificant that scholars of the West did not any longer know whether it yet existed. Martin Kraus asks this very question. Although recent archæological and historical investigation shows that Athens never ceased to exist, and that it was throughout all the middle ages an important if not a prominent city of the Byzantine Empire, yet it is true that Athens of those days had fallen, fallen. At the most it produced a scholar of repute now and then, such as the brilliant Evdoxia, who later became Empress. But there were no important institutions of learning nor any great teachers. The monastic schools, founded to replace the schools of philosophy, did good work in their way, but their aim was not high.

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[1] See Ludwig Ross's account of the founding of the university in Putz's Deutsches Museum, 1853. This account is also published in Otto Jahn's edition of Ross's Erinnerungen an Griechenland. Berlin, 1863, IX and X.

C. L'Évêque, L'Université d'Athènes et l'instruction publique en Grèce. (Rev. d. Deux Mondes, 1847, pp. 499 ff.)

Ἱστορία τοῦ Πανεπιστημίου ὑπὸ Εὐθυμίου Καστόρχη in the *Ἔσπερος*, 1885, nos. 90–92.

Οἱ νόμοι τοῦ Ἐθνικοῦ Πανεπιστημίου ἐκδιδόμενοι ἐπιμελείᾳ Αρ. *Βάμβα, ἐν Ἀθήναις*, 1885.

Le Cinquantenaire de l'Université d'Athènes, in the Revue des Études Grecques I (1888) pp. 78 ff., by Mr. D. Bikelas.

Χρονικὸν τῆς πρώτης πεντηκονταετηρίδος τοῦ Ἑλληνικοῦ Πανεπιστημίου κατ' ἐντολὴν τῆς Ἀκαδημαϊκῆς Συγκλήτου. ὑπὸ Ἰωάννου Παπαζώτου. Ἀθήνησι, 1889.

Ὁδηγὸς τῶν φοιτητῶν τοῦ Ἐθνικοῦ Πανεπιστημίου ὑπὸ Α. *Κολιαλέξη καὶ* Κ. *Ξανθοπουλίδου. ἐν Ἀθήναις*, 1893.

Λόγοι καὶ διατάγματα περὶ τοῦ Ἐθνικοῦ Πανεπιστημίου ἀπὸ τοῦ ἔτους, 1836–1895, *ἐκδιδόμενοι ἐπὶ τῆς Πρυτανείας* Αν. *Διομήδους Κυριακοῦ. ἐν Ἀθήναις*, 1896.

Ὁδηγὸς τῶν Φοιτητῶν τοῦ Πανεπιστημίου Ὀθωνος, περιέχων παραίνεσιν εἰς ἐπιστημονικὴν παιδείαν, μέθοδον αἷς ἐπίτευξιν αὐτῆς καὶ τοὺς νόμους τοῦ Πανεπιστημίου· ὑπὸ Α. *Ρουσοπούλου. ἐν Ἀθήναις*, 1857.

It was only after the return of liberty to Athens that a higher school of learning was again established. No sooner had the Greeks loosed themselves from the bonds of oppression than their old love of learning immediately reasserted itself.

We have seen how the English wisely founded a college at Kerkyra, and how well it prospered. This school probably served as an incentive and a near model for the Greeks of the mainland.

The years of Kapodistrias's dictatorship passed away without the founding of a university.

In 1834 the seat of government was transferred from Navplion to Athens. The transfer was made under Otho, who, after the death of Kapodistria, was appointed by the powers to be the first King of regenerated Greece.

On the 31st of December, 1836, a royal decree was issued providing for the establishing of a university, and regulating the details concerning the constitution of this future institution. This edict was promulgated during the absence of the King in Europe. The King, on returning, was not pleased with it, and in a decree of April 14 (26), 1837, he declared the previous decree null, and issued a temporary set of regulations for the proposed university. Then, on the 22d (3d) of April he issued a decree for its final establishment. This decree contains the names of the men appointed to be the first professors. It is published in Bambas (*Νόμοι τοῦ Πανεπιστημίου*, pp. 61–70). Otho followed the custom prevalent in Germany, and named the university after himself, *τὸ Πανεπιστήμιον τοῦ Ὄθωνος*.

A full system of schools from the lowest to the highest had been drawn up by Maurer, one of the regents during the minority of the King. (See Maurer, Das griechische Volk, etc., II, pp. 188, and 215.) He proposed to have a Hellenic school in every eparchy, and in every province a gymnasion, and in Athens a university, an academy, and a school of art. His plan was to have the founding of the university take place in October, 1834, and that of the academy on November 2, his own birthday. But he had been recalled to Germany before having an opportunity of putting his plans into act. He brought them with him to Germany, not wishing others to idly profit by them, nor his reputation to be jeopardized by their misuse or misinterpretation.

Otho's decree was welcomed with joy. Only one determined voice was raised against it, the editor Lebides, in his journal, the *Ἐλπίς*, fiercely attacked the founding of the university as premature.

But what name was to be consecrated to serve as a translation for the European word "university?" The institution founded in Kerkyra by the English bore the title of "academy." But the word *Ακαδήμεια* in its classical sense expressed something different from a university, and besides the modern Greeks wished to use that word as a translation of the European word academy. Names such as *Μουσεῖον*, *Πανδιδακτήριον* were recalled. Other names that in Turkish times indicated a school of higher studies were *Ἑλληνομουσεῖον*, *Λύκειον*, *Φροντιστήριον*, *Γυμνάσιον*. These names though adaptable gave way finally to the new creation, *Πανεπιστήμιον*. It certainly is a suitable word, expressing at least all that is implied in the "Universitas Literarum et Scientiarum" of the West.

The decree of 1837 contained a number of regulations which were to serve as a guide in all matters relating to the university until such time as a regular constitution could be drawn up. This constitution, however, never came into existence; and the provisional regulations of the decree have served ever since as the basis of all university government.

According to these regulations the university consists of four faculties, theology, law, medicine, and philosophy. Each faculty or school, consists of a definite number of chairs or professorships. The professors of each school under the presidency of the dean, constitute an independent teaching body, inseparable, however, from the university, and in continual touch with the other schools, and under the general control of the senate of the university.

The provisional regulations provided that the first professors should be appointed by royal decree, but that beginning with the year 1842 the several schools should elect their own professors. The mode of election was to be determined in the university constitution; but, since that constitution never came into existence, the Government continued to appoint directly all professors up to the year 1882. Since that year each school proposes the candidates and the minister of education formally appoints.

The King appointed twenty-three professors, two in the school of theology and seven in each of the other schools. It is easy to believe that Otho had a difficult task in finding twenty-three men capable of undertaking university work. True it is that he could find many that were willing to undertake the task, but yet there were scholars in Greece that loved duty more than dignity. One of these was Gennadios. Otho invited him to a chair in the university. Gennadios replied: "If we all make a jump for the university who will take care of the lower schools? They also are important." Scholars were not scarce in Greece at that time, but other requirements beside scholarship are needed in a professor. To prevent all devastating blunders he should have already been tried as a teacher in a lower school and found capable. Several of the first professors were Germans. That it should have been found wise to appoint these foreigners should not surprise us. They were men of experience. It is in no way a reflection on Greece. The Greeks should be proud to have been able to produce instanter an Asopios, a Leon Melas, a Misael Apostolides, an Argyropoulos, a Pallekas, a Kostes, a Kontogones. Among the German professors were Feder in the school of law, Treiber in medicine, Ulrichs in Latin, Ross in archæology, and Landerer in chemistry.

Ludwig Ross was a native of Denmark. He was also appointed custodian of antiquities. In this capacity, as in that of professor, he did much good. He undertook, however, to restore the Parthenon to its original condition. Archæologists and art lovers are glad that he did not have an opportunity of carrying out this attempt. He collected many inscriptions and other remains of antiquity that otherwise would have been lost. His descriptions of his journeys through different parts of the Kingdom are especially interesting, and useful as funds of historical, philological, geographical, and archæological information.

Ulrichs was a native of Bremen. He died in Athens in 1843. Before receiving the appointment to a professorship in the university he was professor of Latin in the central gymnasion in Ægina. He came to Athens not as seeking a position, but as a Philhellene.

These Germans adopted the modern pronunciation of Greek, and then, speaking in ancient or modern language, they were at once intelligible to their foreign audience.

The first four deans, then called Σχολάρχαι, but now Κοσμήτορες, were appointed, as were the professors, by royal decree. Now, however, each school elects its dean.

The first rector, Πρύτανις, was also appointed by royal decree. This honor was given to Konstantinos Schinas.

On the 3d (15th) of May, 1837, the official opening of the new university took place in the presence of Otho and his cabinet. The scene was so affecting that the King wept. The Bishop of Attika blessed the undertaking and chanted the Εὐλόγητος εἰ χριστέ. The Prytanis read an address proper to the occasion, as did each of the four deans. The first regular lecture took place in the following week, on the 22d of May. It was a lecture by Ludwig Ross, and on the Acharnians of Aristophanes.

But where did all of this take place? No buildings had been erected to serve especially for the purposes of a university; and no large buildings already existed; in fact, oppression and war had reduced Athens to a mere collection of hovels. One building, however, was found sufficiently commodious for the immediate needs of the infant university, the house of Kleanthes, Οἰκία Κλεάνθους. This had already

been used as a gymnasion. It stood near the foot of the north slope of the Akropolis, in the "Plaka," or, more exactly, in the Anaphiotika, a section so called because inhabited by settlers from the island of Anaphe. The house is still standing, although few seem to know its fame. It is now monastic property, being a possession of the Church of the Holy Sepulcher, in Jerusalem (*Μετόχιον τοῦ Ἁγίου Τάφου*). (See *Ἑσπερος*, VII, 24.) The Archæological Society is now preparing to excavate the Anaphiotika quarter, and an old landmark will soon be destroyed.

THE FIRST STUDENTS.

When the university was founded, there were only three gymnasia in the entire Kingdom having the right to give dimissorials, and these had been in existence but a few years. Accordingly, there was not a large number of young men that could present themselves as trained candidates for a university course of studies. The three gymnasia then operating were those of Navplion, Syros, and Athens. The one at Ægina had been discontinued, and its personnel and movable property transferred to the gymnasion of Athens.

It was discovered that the number of regular students at the university would not be sufficient to enable the professors to teach their course in a satisfactory way. In order not to be impeded by this circumstance, two measures were resorted to. First, not only might all young men that had completed the course of studies in a gymnasion become full students, *Φοιτηταί*, in the university, but also all the pupils of the highest class in the gymnasia were allowed to enroll themselves as full students without making their last year of the gymnasion course. Secondly, any person in a Government position, or any other person of good repute and some preparation, could be enrolled as auditor (*Τακτικοὶ ἀκροαταί*). This class of regularly enrolled auditors was recognized until 1844, when, on account of the sufficiently large number of regular students, there no longer existed any need of the auditors. But attendance at the lectures of the university has never been denied to anyone; so that the number of auditors has always been considerable, although not recognized officially.

No one not a regular student could become a candidate for a degree. The regular auditors might receive testimonials stating what courses they followed as auditors.

By the two concessions mentioned the university succeeded in gathering in 127 men and boys, of which 52 were full students and 75 regular auditors. Of these there were in theology 8 full students, in law 22 students and 71 auditors, in medicine 4 students and 2 auditors, and in philosophy 18 students and 2 auditors.

STUDENTS FROM UNREDEEMED GREECE.

But there was another difficulty to be met. Since the university was intended not only for the sons of inhabitants of free Greece, but for young men from all parts of the Greek world, some provision had to be made for the admission of students coming from abroad—from Turkey in Europe, from Asia Minor, from Egypt, etc. These applicants could not bring a dimissorial from a gymnasion, because gymnasia did not exist in most of the cities of these countries. Yet they were often quite well prepared to begin a university course, having studied in some good Hellenic school of the old type or having received private instruction. To do justice to these candidates a special committee of professors was appointed to examine them, and if found fit they were allowed to be enrolled as full students. This committee continued to exist until regular gymnasia had been established in most of the large Hellenic centers abroad, and the young Greeks from outside the Kingdom could come with a regular dimissorial. The provisional government, which held sway for a time after the overthrow of Otho, abolished the committee by a decree of September 6, 1863 (see Bambas, p. 46, note), and since 1863 if a student comes from without the Kingdom, not having a dimissorial, he is advised to present himself at a gymnasion and pass the final gymnasial examination, and thus receive the regular certificate of admission to the university.

The sons of the unredeemed Greeks have shown themselves worthy of the concessions made to them. They appreciate the blessings of education even more than do those raised in the Kingdom of Greece. You can perhaps find no Greek village in all the country under the Crescent, be it in Europe or in Asia or in Africa, without finding the poor rajah saving up his groats in order to send a son to Athens to study.

THE SECOND YEAR.

Shortly after the formal opening the lectures were discontinued on account of the approach of summer. In the following September they were resumed, and thus the university entered upon its first full year of duty. For this year a programme of studies was issued according to the German system, with a learned archæological monograph by Professor Ross. To the school programme of the following year a like dissertation was prefixed on a theological subject. Thereafter, however, the custom of prefixing such dissertations was abandoned.

During this year a second class of instructors was added, corresponding to privat docenten in the German universities. These *ἐφηγηταί*, as they are called, teach as independently as do the full professors, only they must find hours not occupied by a professor's work for the same students. These docents receive no salary.

THE FIRST DOCTOR.

Although university work went on regularly and earnestly, seven years elapsed before a candidate came forward to take the examinations for the doctorate. This lack of candidates was due to two causes, to the fact that the Government had not yet determined on the conditions for the doctorate, and that the better students were glad of an opportunity to go to Europe for a year or two to finish, while the less ambitious were satisfied with a mere certificate of the fact that they had made a university course.

The Government first published the conditions for examination for the doctorate and the method of conducting the examinations in a decree of May 19 (31), 1842.

When in the year 1844 a candidate presented himself for examinations the event was an interesting one. The candidate was Anastasios Goudas, from Ioannina, one of the students that matriculated for the first opening of the university. He received his degree in medicine. In the same year Konstantinos Kleonthes presented himself in the school of philosophy. Although a good student he failed in the oral examinations. Accordingly he left the university with no other title than that of *τελειοδίδακτος*, which meant that he had followed a full course. He afterwards became a teacher, and a successful one. Shortly before his death, which happened a few years ago, he finished and published in Triest an edition of Pindar in five volumes.

The new university, as can be clearly seen, was modeled after the German schools, and more especially after the universities of North Germany, on a plan originally drawn up by Professor Brandis. Whether so close an imitation was wise or not is difficult to know. It is certainly wiser to imitate than to differ merely in order not to imitate.

GREEK AND GERMAN PROFESSORS.

There soon rose sharp friction between the Germans and the Greek professors. The result was that in 1843 Ross and Ulrichs lost their professorships. This was due, not so much merely to lack of harmony between the two sets of professors, as between the Greeks and Germans in general. In fact, a revolution broke out in Athens which had as its result the expulsion of all Germans from positions under the Greek Government.

THE UNIVERSITY AND THE BOULÉ.

On account of the high hopes the Greeks held for their university, and the influence they expected it to have for good in the advancement of the interests of the

race. it seemed not improper that the university should have its representative in the Parliament or Boulé.

When in September, 1843, the dissatisfaction of the people with the dictatorial policy of good King Otho and the unsavory possession of all higher positions by Bavarian officeholders, caused an insurrection of the army, the sympathies of the university men were on the side of the people, although the professors were not forward in promulgating their democratic views. However, after the insurrection was an accomplished fact, and its results had been accepted by both King and people, they did not hesitate to refer to it approvingly even on official occasions.

A result of this insurrection was that Otho conceded a constitution to the nation. A National Assembly, Ἐθνικὴ Συνέλευσις, was convened to vote on the acceptability of the constitution. The professors petitioned the assembly for a representative in the Boulé. Objection was made against the petition on the grounds that if such a privilege were conceded to the university, then also other corporations would demand the same right. Finally, however, by a vote of 119 to 44, the privilege was granted. The representative might be himself one of the personnel of the university, or he might be an outsider.

The university accepted the coveted privilege and elected Alexandros Mavrokordatos. He was a prominent politician. The appointment was not by any means pleasing to the Boulé, and it refused to recognize the appointment.

In the following year the excellent professor of philosophy, Philippos Ioannou, was sent as representative, and was accepted. On the 5th of February, 1846, in a splendid oration before the Boulé, he defended and vindicated the action of the university in electing Mavrokordatos. (See the Αὐγὴ for February 7, 1846.)

In the next National Assembly, which was convened in 1862 to heal the wounds made by the expulsion of Otho, the university was represented by two delegates. Their presence and right to be present was recognized by the Assembly, but it passed a decree depriving the university of all future representation in the Boulé.

NAME OF UNIVERSITY CHANGED.

The university continued to bear the name of its founder, Otho, as long as he continued to be King of the Greeks. But when in 1862, this Philhellene retired, the Greeks, prompted by their eternal spirit of democracy, changed the name of the university from Ὀθώνειον to Ἐθνικὸν Πανεπιστήμιον, National University. The change was proposed by the minister of public instruction, and the Provisional Government, which then controlled affairs, immediately sanctioned the change on the 29th of October, 1862. Indeed the university, especially the students, was responsible in a great measure for the insurrection. With this change of name, and the part the university took in the insurrection, we are forced to recall the prophetic words of the old soldier, Kolokotrones, who on one occasion, pointing to the new building of the university and to the colossal marble palace of the King, which stands but a few squares distant, said: "This house will some day eat that house up," Τοῦτο τὸ σπίτι θὰ φάγῃ ἐκεῖνο τὸ σπίτι. (See Ἐθνὸς, October 17, 1887.)

The name of national was chosen because the Greeks regard the university not as the university of Athens, or of the free kingdom merely, but of all the Greeks.

THE FIFTIETH ANNIVERSARY OF ITS FOUNDATION.

In May, 1887, the university celebrated the fiftieth anniversary of its foundation. Great was the pride of the Greeks over all the Eastern world. Telegrams and letters of congratulation and embassies came from all quarters. The feast of intellect lasted for three days. It began with religious services in the Metropolitan Church on the morning of May 17th, and ended with the presentation of a Greek drama, Sophokles' Œdipous, the King.

In memory of this significant event the council of the university resolved that a chronicle be written giving the history of the first fifty years' progress of the university. The honor of writing it was conferred on Prof. Ioannes Pantazides. He published the chronicle in 1889.

A FEW OF THE MORE PROMINENT PROFESSORS.

Many of the professors have been men of high attainments in their special line of investigation. The name of Asopios can not be omitted. Asopios had studied in Germany and taught in the Ionian Academy.[1] He was an enthusiastic admirer of the old philology. He wrote a grammar which served as a model for most of those that have since been written in Greek. In 1842, by royal decree, a seminary for the study of the Greek language was established in the university, and Asopios was appointed to be the first director.

A professor remarkable for the influence which he possessed over the students was Theodoros Aphentoules. (See sketch of his life in the *Ποικίλη Στοά* for 1894 by Dr. Petros Apostolides.) For fifty years he taught pharmacology in the university. As teacher he was as interesting as he was scientific. It was not rare for students of other specialties to attend his lectures regularly on account of the attractiveness of his teaching. He has added to modern Greek literature not only noteworthy treatises in his own science, but he was a lover of fine literature as well, and has left a volume of beautiful lyrics.

He lived not in Athens, but in the Peireevs. There also he practiced as a regular physician. The entire city knew him, and knew him as a benefactor. He was often in serious humor called the tutelary deity of the city, *Πολιοῦχος τοῦ Πειραιῶς*. He died a few years ago.

The school of theology has not produced any great scholars, but it has produced some remarkable men. One of the first professors was Kontogones, who taught from 1837 up to the year of his death, in 1878. (See his life, by Pavlos Ioannou, in the *Εσπερος*, III, 135.) Besides teaching continuously, and sometimes supplying for long periods of time other professorships for which there was no incumbent, he wrote a number of books that mark an epoch in the work of the school. Among these works are his *Ἐπιτομὴ Ἑβραικῆς Ἀρχαιολογίας*, his *Πατρολογία ἤτοι ἱστορία τῶν πατέρων τῆς ἐκκλησίας τῶν πρώτων αἰώνων*, an *Ἑλληνικὴ Μυθολογία*, an *Ἐπίτομος εἰσαγωγὴ εἰς τὰς Γραφάς*, and *Ἐκκλησιαστικῆς Ἱστορίας τόμος πρῶτος* (his death prevented the completion of this latter work). He also edited for a number of years the *Εὐαγγελικὸς Κήρυξ*, an ecclesiastical and theological periodical which enjoyed high reputation even outside of Greece.

Speaking of eminent professors, it will not be out of place to mention two or three of those who are still living.

In the school of philosophy, Konstantinos Kontos, whose compeers in his specialty are few, teaches the Attic language. Among his best known writings are his *Γλωσσικαὶ Παρατηρήσεις*, in which he sharply corrects many blunders made by modern students of the Attic, both Greek and foreign.

Another philologian of highest worth is Georgios N. Hatzidakis, whose specialty is comparative philology as applied to the study of the Greek language, both ancient and modern. His writings in Greek and in German are numerous. His largest work is his Grammatik der Neugriechischen Sprache (Leipzig, 1892).

Prof. Stephanos Koumanoudes must also be mentioned. On account of advanced age, he is no longer in active service. His services to philology and archæology are known the world over. He was for years one of the editors of the *Ἐφημερὶς Ἀρχαιολογικὴ* and of the *Ἀθήναιον*. Among his important books is his *Λεξικὸν Ἀθησαυρίστων λέξεων*.

The schools of law and medicine have also produced a number of scientific men.

The professors of the university are nearly all of the orthodox religion. But there is no religious test whatsoever. Two of the professors are Catholics, and one of the docents is a Protestant, a former student of Harvard.

[1] See Const. Asopios, by Frabasiles, in the Rassegna Ellenica, No. 5.

DOCENTS.

Whoever wishes to become a docent, *ὑφηγητής*, brings to the dean of the school in which he desires a place his doctor's diploma, a statement concerning the matter he intends to teach, and a habilitations dissertation on the same subject. The dean lays these before the faculty of the school. The faculty appoints a day for him to appear before them and lecture. If he shows himself a fit teacher, he is approved and recommended to the minister of education for appointment. If the candidate shows himself capable, the school can not refuse to appoint the day for his trial lecture, and can not refuse to declare his fitness. His appointment therefore depends almost entirely on his own worthiness.

In the school of theology, since the doctorate is not regularly conferred, candidates for the *ὑφηγεσία* may present a diploma from the school of philosophy, together with a statement that they have heard a course in theology. If they have studied abroad, they may, of course, present their diploma from a foreign university. (See Bambas, *Νόμοι*, pp. 44, 45.)

GOVERNMENT OF THE UNIVERSITY.

The highest governing power in the university is the senate, *Σύγκλητος*. The senate is made up of one dean and one other representative elected by vote from each of the four faculties, the rector, who is elected annually by the full body of professors, and the proprytanis, or rector of the preceding year. These ten men then constitute the senate. They are amenable to the minister of education. The prytanis and deans hold office for one year; the other representatives for two years, two being elected each year.

BENEFACTORS.

The little Kingdom would not have been able to do so much for education were it not for the efficient aid of generous and patriotic individuals. The university, as the crowning institution in Greek education, has merited and received gifts, not only from Greeks, but also from Philhellenes. The Greeks, in giving of their wealth to the support of the university, never lose thought of the national idea, and accordingly, moved by patriotism, their gifts are sometimes valuable, not for the amount given, but for the spirit of the donor. However, many a gift comes sufficiently large to be of grand service to the cause of higher education. A list of all gifts of sufficient size to entitle the giver to the rank of benefactor of the university was published complete up to the year 1872 by Rector Kastorches in his report for that year. The gifts since that date are mentioned in the yearly reports of the successive rectors.

One of the most munificent donors was the Kretan Ph. Papadakis. He left the greater part of his fortune to the university. His gift netted 893,168 drachmas.[1] As a condition, Papadakis imposed the obligation of keeping three scholars, giving each 100 drachmas a month. His country does not forget him. The grave of Papadakis, in the cemetery beyond the Ilissos, is adorned by a beautiful monument, made by the sculptor Broutos, representing Fame writing the name of Papadakis on a slab over his grave. On the gravestone is the following inscription:

Δωρεᾷ ὃς πίνυτε περισσῇ ἐπαί ἐ λίπ' αἰών
Μουσάων ναὸν Ἱερίδων ὕπατον
Τῷ κείνου ταμίαι τὸδ' ἄγαλμ' ἐπὶ τύμβῳ ἔθηκαν
Μνῆμ' εὐεργεσίης ἔμμεναι ἀθάνατον.

(See *Ἑσπερος* August 15, 1881.)

Other large donors are Bernardakes, Batopedinos, and the Ionides family.

Another kind of benefactor is represented by Barnabas, the Kretan, who, having no money to give to the university, and yet desirous of doing what lay in his power,

[1] A drachma is worth about 19.3 cents.

gave his pistols and yataghan to the astonished rector, Dr. Soutsos. (See *Λογοδοσία Σούτσου*, p. 25.)

On another occasion the university fell heir to 20 drachmas, bequeathed to it in the will of Demetrios Oka, knife grinder.

The names of the more munificent donors are written in letters of gold on two marble columns that stand on either side of the entrance to the aula magna of the university; and on the 30th of January of each year, the feast of the three great Hierarchs, the university celebrates solemn mass for all these benefactors, praying for the health and long life of the living and the repose of the soul of the departed. On this occasion a panegyric in their honor is spoken by one of the professors. This *Μνημόσυνον* was first celebrated in 1842, when Professor Bambas spoke the panegyric. The feast of the three Hierarchs had long been a school feast among the Greeks.

The university, although the recipient of many and generous gifts, did not and does not preclude other institutions from receiving other equally generous gifts. Thus, Prince Ypsilantis gave his whole fortune to found a school in Navplion. The school still flourishes there. Others, like Arsakes, Barbakes, Rizares, etc., gave their good gifts elsewhere. These benefactors began their givings long before the establishment of the independent kingdom, as we have already seen in speaking of schools in Turkish times. The Zozimas brothers should be especially mentioned. On account of the liberality and multiplicity of their gifts, they have been called the Greek Medicis. They aided education in Leghorn, Moscow, Ioannina, and elsewhere.

It must be noted with sorrow that the money of the university has more than once been a temptation to the honesty of those in whose care it was confided. According to reports lately handed in to Mr. Metaxas, the minister of education, some thousands of dollars were lost to the university in the year 1895-96 by carelessness of the rector and treasurer.

Along with the benefactors of the university should be mentioned the men who have given sums of money the interest of which is to be used in the giving of prizes for the best work done in literary or scientific contests (*ἀγῶνες*, *ἀγωνοθεσίαι*). Among these, one of special interest to us is the Cotting contest, *ὁ Κοττίγγειος ἀγών*, established by Dr. Cotting, a distinguished physician of Boston. Most of these contests are open to all who wish to compete, and are not reserved exclusively to students.

THE PRESENT UNIVERSITY BUILDINGS.

From the very beginning of the life of the university in the *οἰκία Κλεάνθους* it was evident that larger and more suitable buildings would have to be provided as soon as possible. A site for the main building of the new structures was selected, and the university authorities began to prepare for the undertaking. They had to rely entirely on the hopes of voluntary contributions. In the second year of the existence of the university Rector Ralles made an appeal for aid. Responses came immediately. Among the first was the Greek community of Galatz, which presented a gift of the timbers and other wood needed.

The building was begun with only 28,790 drachmas in the treasury. On July 2, 1839, the corner stone was laid. (See *Ἑλληνικος Ταχυδρόμος* for July 9, 1839.) The building did not proceed very fast, however, as the authorities kept within their resources. In November, 1811, one wing was brought to completion and was dedicated officially. This wing was immediately put into use, and from that time on the university has been housed in these new buildings. The entire structure was not completed until 1864.

THE UNIVERSITY LIBRARY.[1]

The library of the university has been created from gifts in money and in books from private individuals. It has been of no considerable expense to State or to university, and yet it is an excellent one, although not up to requirements in every respect.

[1] See *Ἡ Ἐθνικὴ Βιβλιοθήκη, ὑπὸ Εμμανουὴλ Ῥοΐδου.*

Among the first books received for the university library was a gift of 52 volumes sent by Governor Winthrop, of Massachusetts, in 1837. (See *Λογοδοσία Σχινᾶ*, p. 14.) The first professors gave from their private libraries whatever they could spare. Among the benefactors the Greeks of foreign lands were, as usual, conspicuous. Among them was Demetrios Galanos, one of the earliest Sanskrit scholars in Europe. After living and studying a long time in Calcutta and Benares he came to Athens, where he died in 1833, leaving 36,000 drachmas to the university and his books to the library. A number of manuscripts of translations which he made from the Sanskrit are still in the library. Some of them were published by G. K. Typaldos, the first ephor of the university library.

Since the completion of the new buildings of the new university up to the present time the library has been housed on the second floor of the main building, where it was naturally cramped for want of room. This fact gave opportunity to two rich brothers, natives of Zakynthos, who had amassed fortunes abroad, to benefit their fatherland by presenting it with a magnificent building to be used exclusively as a library. The splendid structure has been lately completed. It is in marble and of Doric style. It occupies and fills the square north of the university. On the façade is the inscription *φκοδομήθη δαπάναις τῶν ἀδελφῶν Βαλλιανῶν*. From the name of the donors the library is called the Ballianeion, *Βαλλιανεῖον*.

The library is rich not only in old printed editions especially of Greek works—editiones principes, and other rare editions—but possesses a large number of manuscripts. They are chiefly ecclesiastical or chronological works, and date from the fifteenth century down. They have been carefully examined by others, but especially by Mr. Sakkelion, who was an excellent palæographist. He died a few years ago. He published a number of smaller manuscripts, and made quite a complete catalogue of them all.

There is no printed catalogue of all the departments of the library, but the making of such a catalogue has been in hand for a number of years, under the direction of Dr. Michael Deffner, assistant librarian. The theological, philosophical, and philological portions of the catalogue have been published.

In many monasteries of Greece there once existed small libraries containing interesting old manuscripts. Most of what was valuable in these libraries, however, has been brought to Athens, especially to the university library, if not smuggled off to Europe. But in spite of this double and partly excusable despoliation, the monastery libraries contain even yet many a treasure.

Besides the university library there are other large collections of books at different places throughout the Kingdom. In Athens itself is the library of the Boulé, second in importance only to that of the university.

An interesting library is in Demitsana, a small town situated in the mountains a few miles east of Olympia. This library belonged to the famous school which Agapios remodeled in 1764. Many of the books were destroyed during the war. The wild Arkadians and Maniotes used them for making gun wads. Other of the more valuable works are now in Athens. But still the library is important. It is kept in the Hellenic school building. Evthymios Kastorches, professor of Latin at the university, wrote an interesting monograph on this library.

In Andritsæna, a small town in the northern part of Messenia, is another noteworthy collection of books. It was a gift to the town by Agathophron Nikolopoulos, a native of Andritsæna, who before the war of liberation traveled through different countries of the Levant, and having a great love for books, turned whatever money he made into the purchase of them. After Greece became free he gave them to his townsmen. It consists of about 20,000 volumes. Unfortunately, the books are not arranged and are not in the care of a librarian, but are stored up and are almost inaccessible.

The above libraries are mentioned on account of the peculiar interest that attaches to them. Numerous other modern libraries are to be found scattered throughout the Kingdom, in gymnasia and elsewhere.

SEMINARS.

(Φροντιστήρια.)

The knowledge presented to students through lectures would be of little value if not tested and assimilated by actual work done by the students themselves. The university in its phrontisteria and laboratories offers to the student the opportunity of not only testing the truth of the statements of his professor, but of making investigation for himself along a line of inquiry similar to that he observes his teachers to be following.

Of the phrontisteria the most important are those of Greek philology, of comparative philology, of Latin philology, of history, the mathematical seminar, the pedagogical seminar, the anatomical seminar, and the zoological seminar.

The chief laboratories are the following: Laboratory of general chemistry; laboratory of experimental physics; laboratory of pharmaceutical chemistry; pharmacological laboratory; phytological laboratory; histological laboratory; mikrobiological laboratory; pathological laboratory; laboratory for pathological anatomy; anatomical laboratory; botanical laboratory.

In these laboratories the students carry on research work, under the direction of the proper professors or other instructors. Some of these laboratories are well equipped for original investigation, but the work usually done is not so much in search of originality as to acquire a certain amount of experience and knowledge needed in some practical profession; and the laboratories are fitted out chiefly with this end in view. Good original work is, however, continually being done both by professors and students.

SCIENTIFIC COLLECTIONS.

In addition to the seminars and the laboratories, the university possesses, or has at its disposal, various collections of objects that supplement or assist the work done in the seminars and laboratories. Of such collections the most valuable are the National Museum of Antiquities, the Museum of Antiquities on the Akropolis, the Numismatical Museum, the Anthropological Museum, the Botanical Museum, the Pathological Museum, the Physiological Museum, and the Physiographical Museum.

The Anthropological Museum is under the care of Dr. Klon Stephanos. It is especially interesting on account of a collection of ancient skulls which Dr. Stephanos is engaged in making. He intends by means of comparative craniology to examine into what claims the modern Greeks have, from this point of view, to be regarded as blood descendants of the Greeks of classic times. He has skulls from the Mykenæan period, others from the tumulus at Chæroneia where the Theban legion fell fighting against Philip of Makedon, and others from other epochs of Greek antiquity.

Beside the seminars, laboratories, and scientific collections, mentioned, there are also a number of other places where a student may acquire knowledge and experience in certain lines. Some of these places are:

(1) The Botanical Gardens, situated at a distance of about ten minutes' walk from the Kerameikos gate, along the Holy Way which leads from Athens to Elevsis.

(2) The Astronomical Observatory, on the summit of the Hill of the Nymphs, west of the city. It was built in 1842, at the expense of the Baron Sina of Vienna, who also expended large sums in equipping it. Dr. Julius Schmidt, who for years was director of this observatory, did splendid work here. During his directorship, which ended with his death in 1884, he wrote more than 400 astronomical monographs. The Prussian Government bought his Lunar Chart for 20,000 thalers. (See Ἔσπερος, III, 340.)

(3) Students have also access to the public hospital, the Eye Institute, and the Lying-in-Hospital.

ENCYCLOPEDIA AND METHODOLOGY.

In each school provision has been made to have the encyclopedia and methodology of the different sciences taught; otherwise in some sciences, such at least as theology

or philology, it would be impossible for the student to orientate himself without immense labors, and wrong orientation would destroy him as a scientist forever.

The first teachers of encyclopedia and methodology were Kontogones in theology, Bambas in philosophy, Hertzog in law, and Bouros in medicine.

THE SCHOOL YEAR.

The year begins with the last two weeks of September and closes with the last two weeks of May. During this time there are two breaks in the continuity of instruction, one a rest of a few days at Christmas time and the other at the Easter holidays, which last two or three weeks. The end of the Easter holidays is so close to the end of the scholastic year that most of the students from the provinces, if they go home for the holidays, do not return to the university before the following September or October. All principal feast days of the church are holidays in the schools, and as these feast days are quite numerous free days come often.

So far as the students are concerned, there is nothing special, other than the enrollments at the beginning of the sessions, to mark the opening or the close of the semesters, as there are no examinations or other such exercises set exclusively for these times.

MATRICULATION.

The only condition for admission to the university is to present a proper dimissorial from one of the gymnasia of the Kingdom. But if the applicant is from abroad, his dimissorial must be from a gymnasion recognized by the Greek authorities. The gymnasia mostly concerned are the Greek schools of the Turkish Empire and Egypt. The following schools in Turkey are officially recognized as being on equal footing with the gymnasia of Greece: The Grand National School at Constantinopol; the Theological School on the Island of Chalke; the Greek Business School of Constantinopol, Εμπορικὴ Σχολή; the Zozimæan School of Ioannina; the Theological School of Jerusalem; all of which have been recognized from the beginning. The following have been officially recognized in the year indicated for each one: The Evangelical School of Smyrna, in 1862; the Gymnasion of Chios, in 1863; of Samos, in 1872; of Thessalonika, in 1875; of Mitylene, in 1875; of Bitolia, in 1884; of Herakleion, in Krete, in 1883; of Kydonia and of Neapolis, in Krete, in 1884; the Zariphæan Schools of Philippopolis, in 1885.

If the applicant from abroad has no dimissorial, his only resource is to present himself for examinations in a gymnasion of Greece. If he brings a dimissorial with him, it must be attested by the consul of that Government at Athens, or by the Greek consul in the country of the gymnasion in question. In August, 1875, the president of Harvard University wrote to the rector of the Greek university regarding conditions for admission of Harvard students to the university. The rector replied that in this regard the students in question would be treated just as citizens of Greece. (See Πρακτικὰ Συγκλήτου, for August 17, 1874; and Pantazides's Χρονικόν, p. 285.)

Enrollments are made only at the beginning of the semesters. They must be renewed at the beginning of each following semester. After enrollment the student is his own master. He is supposed to attend regularly and to become, as soon as possible, a member of such seminars or a worker in such laboratories as his science demands. But, however, if he neglect these obligations he will not thereby create any disturbance for himself until his time for examinations come; then he will probably fail. If he become a member of laboratory or seminar, he is obliged to do such tasks as his professor imposes or recommends; otherwise he is free to study as he pleases. He has no examinations except those for degrees.

COURSES OF STUDIES.

With the exception of the students of pharmacology, all candidates for degrees must follow two courses of studies. One of these courses is made up of what are

called the general studies, *τὰ γενικὰ μαθήματα*, and the other consists of the branches that are special to each science.

A student may present himself for examination in the general studies any time after he has completed two years in the university. If he fail in any one or more studies at this general examination, he may present himself for reexamination in such study or studies after the lapse of one year.

The general studies are the following:

In theology.—Metaphysics, ethics, and psychology; ancient, mediæval, and modern history; Hebrew grammar.

In law.—Logic, psychology, and ethics; ancient, mediæval, and modern general history.

In medicine.—Botany, chemistry, physics, mineralogy, and geology, zoology, and experimental physics.

In philosophy.—In the department of philology: Logic, psychology, æsthetics, and ethics; experimental physics; ancient, mediæval, and modern general history. (Philologs are obliged also to attend lectures on natural law in the school of law, and must attend certain courses in mathematics.) In the department of physics: Logic, psychology, æsthetics, and ethics; ancient, mediæval, and modern history; linear and spherical trigonometry; analytical geometry; higher algebra; elements of mechanics. In the department of mathematics: Logic, psychology, and ethics; ancient, mediæval, and modern history; experimental physics, and physics with mathematical demonstrations; mineralogy and geology.

SPECIAL STUDIES.

In theology.—First year: Attendance at certain lectures in Greek and Latin philology; introduction to Old and New Testament; history of Old and New Testament; interpretation of Old and New Testament; encyclopedia of theology. Second year: Interpretation of Old and New Testament; Biblical criticism; interpretation of sacred scriptures; church history; history of dogma; Christian archæology; symbolics; patrology. Third year: Interpretation of Old and New Testament; dogmatic theology; moral theology; history of dogma; apologetics. Fourth year: Homiletics; catechetics; liturgy; canon law, practical portions; interpretation of Old and New Testament; pastoral theology.

In law.—First year: History of Roman law and the introductions of Roman law; Roman law; political economy; political pleading; natural law. Second year: History of Roman law and introductions of Roman law; Roman law; political economy; administrative law; commercial law; penal law; natural law. Third year: Roman law; civil dikonomy; commercial law; penal law, or penal dikonomy; constitutional law, or international law. Fourth year: Roman law; political dikonomy; penal dikonomy; international and constitutional law; ecclesiastical law.

In medicine.—First year: Anatomy. Second year: Anatomy; physiology; general pathology; pharmacology. Third year: Physiology; general pathology; pharmacology; surgical pathology; special nosology; pathological anatomy; clinical practice; ophthalmology; surgery, with practice in ligaments and explanation and use of surgical instruments; hygiene. Fourth year: Special nosology; surgical pathology; pathological anatomy; medicinal clinics; surgical clinics; clinic for children's diseases; eye clinic; clinic for syphilitic diseases; medicinal jurisprudence; hygiene; midwifery.

In philosophy.—Philological department. First year: Encyclopedia and methodology of philology; interpretation of Greek and Latin poets, and prose writers; linguistics, i. e., Greek and Latin grammar, and general principles of comparative grammar; history of ancient art; Greek and Roman antiquities; history of philosophy; mythology; history of the Greek people. Second year: Interpretation of Greek poets and prose writers; interpretation of Latin poets and prose writers;

linguistics; history of ancient art; Greek and Roman antiquities; mythology; history of the Greek people. Third year: Interpretation of Greek poets and prose writers; interpretation of Latin poets and prose writers; hermeneutics, and criticism; linguistics; history of Greek literature; history of Latin literature; polity of the Romans; Greek and Roman antiquities; pædagogics; meter. Fourth year: Interpretation of Greek poets and prose writers; interpretation of Latin poets and prose writers; history of Greek literature; history of Latin literature; Greek and Roman antiquities; hermeneutics and criticism; pædagogics; meter; linguistics. Department of physics. First year: General chemistry; experimental physics. Second year: Experimental physics; general chemistry; zoology; mineralogy and geology. Third year: Mineralogy and geology, organic chemistry; physics with mathematical demonstrations. Fourth year: Astronomy; mineralogy and geology; organic chemistry; physics with mathematical demonstrations. Department of mathematics. First year: Trigonometry; introduction to higher algebra; plane analytical geometry; higher algebra; experimental physics, and physics with mathematical demonstrations; elements of astronomy. Second year: Differential calculus; solid analytical geometry; spherical astronomy; physics with mathematical demonstrations. Third year: Integral calculus; theoretical astronomy. Fourth year: Theoretical mechanics; theoretical astronomy.

THE SCHOOL OF PHARMACY.

To obtain entrance as student into the school of pharmacy the applicant must present not only his dimissorial from a gymnasion but also a testimonial from a recognized pharmacist stating that the candidate has studied with him for one year after completing his course in the gymnasion, and has therefore a year's experience in practical pharmacy.

The course of studies in the school of pharmacy covers three years. The branches taught are as follows:

First year: General experimental chemistry; experimental physics; zoology; botany; pharmacology; pharmaceutical chemistry; experiments in the laboratory of general chemistry.

Second year: General experimental chemistry; experimental physics; mineralogy; botany; practice in the botanical laboratory; pharmacology; pharmaceutical chemistry; practice in the laboratory of pharmaceutical chemistry.

Third year: Toxicology; practice in the laboratory of pharmacology; pharmaceutical chemistry; practice in the laboratory of pharmaceutical chemistry.

EXAMINATIONS AND DEGREES.

The degrees conferred in course are that of licentiate in theology (*Προλόγης τῆ θεολογίας*), master in philosophy, and doctor in philosophy, law, and medicine. In pharmacy a diploma, but no degree, is given.

As already said, the university students undergo no entrance examinations nor yearly examinations.

The examinations in the general studies have been mentioned already.

The masters' examinations (*Διδασκαλικαὶ ἐξετάσεις, ἐξετάσεις Ἑλληνοδιδασκάλων*) are open to all students that have completed a two years' course in the school of philosophy and have already successfully passed the examinations in the general studies. The candidate is examined in Greek, Latin, archæology, and mathematics.

To be able to offer one's self for the doctor's examinations (*διδακτορικαὶ ἐξετάσεις*) one must have completed a four years' course of university work, either at the University of Athens or at some other university. It is not necessary that the candidate be enrolled as a student of the university at the time of his examinations. The candidates must have already passed the general examinations.

The doctors' examinations, are both written and oral. If a candidate fail in his examinations, he may present himself again after the lapse of a year.

The examinations for the doctorate, especially in the school of philosophy, are much more severe than in other universities. On the other hand, but little importance is attached to the written dissertation. The candidate is not obliged to publish it; it is sufficient that he leave a copy of it plainly written in the archives of university. From the year 1844 up to the year 1853 all candidates for the doctorate were entirely excused from the obligation of presenting a dissertation. The dissertation may be written in Latin or Greek. Philologians must write their Greek dissertations in the ancient language. All other candidates may write in modern Greek. The first dissertation ever presented in Latin was that of Konstantinos Hadjidemetriou, on Studia Vergiliana in 1895. Professor Sakellaropoulos, in accepting the dissertation, took occasion to state that he was glad to finally see a dissertation in Latin, and bases his approval of the dissertation on the fact of its being in that language. (See his approval of the dissertation published with same.)

After the dissertation has been accepted by the faculty, a day is appointed for the formal conferring of the degree.

CONFERRING OF THE DOCTORATE.

(Αναγόρευσις.)

The formal conferring of the degree takes place in the presence of the rector, the dean, and the professors under whom the candidate studied. The affair is a public one, but of course the university does not send out invitations. The candidate invites his friends.

The dean calls the candidate, who then reads the doctor's oath. This is different for each school. It is written in Hellenic for all schools save that of medicine, which, out of regard for the old physicians of antiquity, Hippokrates, Galenos, etc., has its oath in Ionic. It is sufficiently interesting to be quoted here.

*Ἐπειδὴ ἡ διάσημος τῶν Ἰητρῶν Σχολή, τοῦ Πρυτάνιος ἐπινεύοντος, ἐς τους ἑαυτῆς * * * δοκιμάσαι με κατηξίωσεν, αυτῇ τε και τῇ Πρυτανιήῃ δημοσίᾳ τήν δε δίδωμι πίστιν· Ηγήσεσθαι μὲν τοὺς διδάξαντάς με ταύτην τὴν τέχνην ἴσα γενέτησιν ἐμοῖσι, τῇ δε τέχνῃ μηδεμᾷ 'επ' ευμαρίῃ χρήσεσθαι τῇ ἐμεαυτοῦ ἐν τῷ βίῳ, ἀλλ' ἐς δόξαν θεοῦ καὶ ἀνθρώπων σωτηρίην, καὶ τῆς πίστεως αυτῆς τιμήν τε καὶ ὠνησιν. Πᾶν μὲν ὅ τι ἰητροῦ ἔργον ἐστί, πιστῶς καὶ ἀκριβῶς κατὰ δύναμιν καὶ κρίσιν τὴν ἐμὴν ἐπιτελέων, τοῖσι δὲ νοσέουσι, ἣν τε πλούσιοι τύχωσι, ἣν τε πένητες ὁμοίῃ σπουδῇ τὴν ἐκ τῆς τέχνης ἐπαγινέων ἐπικουρίην· μηδὲ παραβόλως ἀποπειρώμενος τὴν τεο ζόην ἀποκινδεύσειν μηδ' ἰητρεύσειν ἐπὶ χρηματισμῷ ἢ φάτιος ἱμέρῳ, ἐς οἰκίας δὲ ὁκόσας ἂν ἐσίω, ἐσελεύσεσθαι ἐπ' ὠφελίῃ καμνόντων, ἐκτός ἐὼν πάσης ἀδικίης. ἃ δ' ἐν θεραπηίῃ ἢ ἰδω ἢ ἀκούσω ἢ καὶ ἀνευ θεραπηίης κατὰ βίον ἀνθρώπων ἃ μὴ χρή ποτε ἐκλαλέεσθαι ἔξω, σιγήσεσθαι, 'ἄρρητα ἡγεύμενος· τῆς δὲ τέχνης ἐπιμελήσεσθαι κατὰ δύναμιν, σπουδὴν πλείστην ποιεύμενος ἀκριβῶσεα ταύτης τὰ θέσμια. Τοῖσι δὲ ὁμοτέχνοισι φιλόρονα καὶ φιλάνθρωπον ἐμεαυτὸν αἰεὶ παρέξειν καὶ σφέας ἀδελφεοῖσιν ἴσον ἐπικρινέειν 'ἄρρεσι, πᾶν σφι προθύμως συμβαλλόμενος ἐξ ὅτεο ἂν ὠφελίῃ γένοιτο τοῖσι κάμνουσι· ταύτην μοι τὴν ἐπαγγελίην ἐπιτελέα ποιέοντι εἴη ἐπαύρασθαι βίου καὶ τέχνης καὶ θεὸν κτήσασθαι ἀρηγόνα, παραβαίνοντι δε, τανantία τουτέων."*

After the reading of the oath the dean confers the degree, with the permission of the Prytanis and in the name of the school.

EXAMINATIONS FOR DIPLOMA IN PHARMACOLOGY.

To obtain a diploma in pharmacology, the candidate must have completed three years in the university and have already passed a written examination in botany, chemistry, pharmaceutical chemistry, physics, mineralogy, and geology, as well as on the subject of his experiments in the laboratories of chemistry and pharmaceutical chemistry.

He is examined by a board, consisting of the professors of phytology, chemistry, pharmaceutical chemistry, physics, mineralogy, and geology. If he passes the examination, he receives his diploma; if he fails, he may appear before the board, after the lapse of a year and try again.

Six months from the time of his receiving his diploma he may appear before a board of physicians (*Ιατροσυνέδριον*) and pass examinations for permission to practice, provided that he bring testimony showing that he has devoted the six intervening months to practical work in a recognized pharmacy.

PHYSICIANS' EXAMINATIONS FOR LICENSE TO PRACTICE.

After a student has won his degree of doctor in the school of medicine, he then visits the director of the city clinic, who enrolls him among those that may study and practice there. After studying in the clinic for nine months he presents himself for examinations for permission to practice (*πρακτικαὶ ἐξετάσεις*). He is then examined in pharmacology, medicinal jurisprudence, surgery, and midwifery, as well as in medicinal and surgical clinics in the hospital.

HONORARY DEGREES.

The university has fortunately kept itself away from the temptation of giving honorary degrees. The only school that has shown any strong tendency to giving such degrees is the school of theology. This school has conferred eight or nine. But for a school that has been in operation for sixty years this number is not large. The school of law has conferred two, namely, on Leon Gambetta, in 1879, and on Zachariae von Lingenthal, in 1884. Both men deserved well of Greece, the one as a statesman, the other as professor and writer on Byzantine law.

The school of medicine has conferred one honorary diploma, on Prof. Rudolf Virchow, on the occasion of his visit to Athens in 1879.

The school of philosophy has never given an honorary degree.

THE UNIVERSITY STUDENT.

The Greeks of to-day, like their renowned ancestors, are exceedingly clannish. This clannishness is naturally found among the students of the university. Those from the same locality usually go together. On this account they never have formed any large and lasting societies other than those in which the membership is limited to students from certain provinces or countries.

Although the student is not a strong social or political factor, yet at times he makes himself and his influence felt. He has always been ready to take up his gun and act the patriot soldier whenever occasion offered itself. This showed itself in 1862, when the insurrection against the rule of King Otho brought disorder everywhere. The students then organized themselves, together with the professors, into a military body of about 600 men. They drilled regularly, professor standing side by side with student in the ranks, and served honorably and efficiently as city guards until peace was restored. They patrolled the city night and day. The good services of this body of military students and professors (*ἡ Πανεπιστημιακὴ φάλαγξ*) were so evident that no haste was shown to disband it after the trouble was over. It thus continued to exist legally until the year 1878.

The students are as a rule quite orderly, yet at times their hot southern blood controls them. Their clannish spirit sometimes brings them to take sides with one rival professor against another, or with one docent against another. Sometimes they express their likes and dislikes so strongly as to necessitate the temporary closing of certain lecture rooms or laboratories. (See Mistriotes *ἐν τοῖς κατὰ τὴν Πρυτανείαν αὐτοῦ*, 1890–91, p. 75.)

When these outbursts of sentiment or displeasure take place the students interested, if numerous, often hold their meetings in the open square in front of the main buildings of the university or in the portico of the main entrance. This entrance is called "the Portals," *τὰ Προπύλαια*. And a call to the students made through the daily papers to meet at a certain hour at the Propylæa indicates that some affair of importance to the students, or perhaps of trouble to the authorities, is in the air. When these meetings take on a political character, or are demonstrations

against some measure of the Government respecting education or students, the police are sometimes employed to disperse them. Once, under the excitement of protesting against the taxes levied on all students by way of fees by Minister Trikoupes, their meeting was cut short by the sudden appearance of a company of firemen with engines, who turned full streams of water on the crowds of students, and they, drowned into submissiveness, dispersed.

At times the students act boisterously not only on account of matters that closely affect them as students, but from other motives. Every Greek is a politician; accordingly, the student can not refrain from coming at times under political influence. A notable instance is that of the Skiadists, Σκιαδισταί. These were young students, who in the spring of 1859 wore large straw hats, σκιάδια, made in Siphnos. They wore them not only on account of their cheapness, but as a protest against imported European articles, and as a protest in general against the Government. They were ridiculed and mocked by other young men, not students, of an opposite faction. This led to riotous disturbances and caused the closing of the university for several days. These demonstrations of the Skiadists were the forerunners of the insurrection of October, 1862, which resulted in Otho's expulsion.

The university students represent by parentage no one class of society; the lowest origin does not make young Greeks hesitate, they being the most democratic of peoples. The son of the shepherd or of the gardener is conscious of no vital inferiority to the son of the Chian banker or the Phanariote of Constantinopol; and on the feast day the banker's son and the Phanariote and the descendant of the patriot of 1821 will touch glasses with the rudest peasant. This easy equality, which exists everywhere, exists also among the students.

The great love of education and the desire of every community and every family of any prominence whatsoever to have a representative in the "aristocracy of science" causes the higher schools, and especially the university, to be overcrowded. These doctors, after finishing their studies and enjoying the felicitations of their friends, find it difficult to earn their daily bread at times.

It would be better for science and for the general advancement of the nation if the higher ranks of education were more exclusive.

WOMEN STUDENTS IN THE UNIVERSITY.[1]

Although woman is highly respected in Greece, yet, as we have already seen, it is only of late that she has been brought into a position to seek the advantages of more than an ordinary book education. But the women of Greece, no matter what their rank, possess a certain natural intelligence and refinement that atone for much learning derived from books.

The entire system of education, as established immediately after the war, was intended for boys. True it is that schools were established for girls, but these schools were conducted on a different scale from those for boys. The curriculum of studies was simpler. It is only after the Philekpaedevtike Etaeria had taken the matter in hand that more attention was paid to the education of girls. Through the efforts of this society they came to have schools equal almost to the gymnasia for boys.

But the ambition for higher studies once aroused and allowed to manifest itself, did not stop with the curricula of the gymnasia, and bright young maidens soon thought of applying for admission to the university. In autumn of the year 1890 when Mistriotes was rector (see Mistriotes *τὰ κατὰ τὴν Πρυτανείαν*, 1890–91), two or three young women applied for the privilege of being enrolled as regular university students. The matter was referred to the senate of the university. The senate, although not in favor of allowing women to be enrolled, nevertheless felt that they could not justly forbid their enrollment, and accordingly gave their consent. The

[1] See Ἡ Ἑλληνὶς ἐν τῇ Ἐπιστήμῃ ὑπὸ Εὐγενίας Ζωγράφου, in the Ατλαντίς for 1892.

minister of education was also consulted by the senate, and likewise did not forbid the enrollment. Since that time nearly all the courses of the university are open to women. The first to take advantage of this new privilege was Miss Ioanna Stephanopoli, who matriculated that very year.

Naturally the number of applicants for the new privilege did not swell into large proportions, because the number of graduates from the Arsakeion and other schools that could prepare candidates for the university, was not large. However, in the year 1894-95 we find the number of woman students increased to five. Once admitted, they begin to show their ability to follow their courses intelligently—for in the year 1896-97, two sisters, Angelike and Alexandra Panagioton, from the Island of Kephallenia, finished their course in the school of medicine, winning the doctorate with the grade of *ἄριστα*.

But even before the doors of their own university were opened to women, they had sought the privilege of higher education elsewhere. The first Greek woman to study in a university seems to have been Sebaste N. Kallispere. She studied in the Sorbonne, and received the degree of doctor in philosophy in July, 1891, after a course of studies covering a period of seven years. Her example was followed by Miss Kalopothakes, who studied medicine in Paris, and is now a prominent and kind physician at Athens.

GREEKS IN THE UNIVERSITIES OF EUROPE.

Before the Greeks became free it was customary, as we have seen, for many young men to go to Europe in order to enjoy the advantages of education. This practice of going to Europe is still more common than need be. Three classes of students go to Europe, (1) those that are desirous of pursuing some line of study not yet well taught at Athens, or who, after having completed their course at Athens, wish to know and to study under eminent Europeans; (2) those that imagine it to be more noble to study abroad than in one's own country, and (3) those who fear that they might have difficulty in passing the examinations in their own university. This last class is not so small as one might think.

Mr. Demetrios Bikelas, in an article on "Paris and light literature" (*Τὰ Παρισια καὶ ἡ ἐλαφρὰ φιλολογία*, in his *Διαλέξεις καὶ Αναμνησεις*, 1893), well describes the bad effect that Parisian life has on some of the young Greeks that go there to study.

THE POLYTECHNIC INSTITUTE.[1]

(*Τὸ Μετσόβειον Πολυτεχνεῖον.*)

During the days of oppression the Greeks had little opportunity of learning or of practicing the finer arts. With the exception of architecture and painting nothing in this line was needed. Even architecture produced no new principles, and painting flourished only in a few centers such as Mount Athos. (See Die Kunst in den Athos-Klostern, von Heinrich Brockhaus, Leipzig, 1891.) Painting, too, had lost all of its life, and was a mere reproduction of stereotype forms as can be seen from the manual of Christian Ikonography by Dionysios of Agrapha. *Ερμηνεία τῶν Ζωγράφων ὡς πρὸς τὴν ἐκκλησιαστικὴν ζωγραφίαν ὑπὸ Διονισιου τοῦ Ιερομονάχου καὶ ζωγράφου τοῦ ἐκ Φουρνᾶς τῶν Ἀγράφων * * * Αθήνησι*, 1853. It has been published in translation also; Manuel d'Iconographie Chrétienne, Grecque et Latine, Paris, 1845.

Accordingly when the Greeks gained their independence they had much to do in this line. Kapodistrias made a good beginning by sending to Italy some young men who wished to study the fine arts.

In the year 1836 a royal decree was published on the last day of the year, establishing a school, where on Sundays and holidays instruction in architecture was to

[1] See the *Πανδώρα*, III, pp. 396–400.

Ορισμος τοῦ Σχολείου τῶν Βιομηχάνων Τεχνῶν εν Αθήναις, 1890.

Much information has been kindly furnished by the secretary of the institute, Mr. A. Mavrides.

be given to such as wished to become builders, etc. Thus began the Polytechnic Institute.

The measure was a popular one, and the school continued to operate under these conditions until 1843. During these six years the school was under the management of Zetner, a mechanician from Munich. Two thousand three hundred and ninety men took advantage of these courses in architecture. Although no architects were created—that would be impossible under the circumstances—yet the school did much good by producing a number of trained workmen and builders. Such men were much needed, as entire cities had to be built up.

The changes in the Government brought in by the events of 1843 caused modifications in this school, as it caused them in almost every other institution of the country. The school was rearranged into three departments. The first of these departments was intended for those who wished to learn some kind of skilled workmanship. In this department instruction was given only on Sundays and holidays. The second department was for those who wished to learn the arts and sciences connected with manufacture. This school was open daily. The third department was devoted to the fine arts. The institute continued to operate on this plan up to the year 1863. During this second period attention was paid to the fine arts, especially to sculpture, engraving, and ornamental design. The director of the institution was Lysandros Kaftansoglos, an architect of high ability, and an advocate of the study of the fine arts. Accordingly these flourished under his enthusiastic management. During this period the school was attended by 8,941 students.

In August, 1863, the Provisional Government reorganized the institution again, establishing a school of the applied arts, a school of the fine arts, and a school in which instruction was given on Sundays. The school of applied arts (*Βιοτεχνικὸν Σχολεῖον*) ceased to exist under this name in 1891. During this period this school was remarkably successful. It was attended by 5,396 students. In 1891 it was thoroughly reorganized and now bears the name of the *Σχολεῖον τῶν Βιομηχάνων Τεχνῶν*. It is to-day the principal and most prosperous school of the Polytechneion. The other schools need remodelling and revivification. Plans have been drawn up for this purpose, but have not yet been approved of by the Boulé. The present director of the institution is Mr. A. Theophilas, who has held the position since 1878. The school of the fine arts has been making good progress. It has produced sculptors and painters and architects that reflect honor on their country. Among the sculptors Leonidas Droses and Georgios Broutos are worthy of mention. Droses was professor of sculpture from 1868 up to the time of his death in 1882. Broutos is at present professor of sculpture.

Since 1893 the school of the fine arts has been open to women students. Within the last four years 361 women students have availed themselves of this privilege.

The splendid buildings in which the schools are held are gifts of three natives of the town of Metsobo. Hence the name of the institution, *Μετσόβειον Πολυτεχνεῖον*.

CURRICULUM OF STUDIES IN THE POLYTECHNICAL INSTITUTION.

The School of Applied Arts (*Σχολεῖον τῶν Βιομηχάνων Τεχνῶν*).

This school is intended to prepare skilled men for the service of the Government and for mechanical professions. The school is divided into three departments: A department of civil engineering, a department for machinists, and a department for surveyors, master workmen, and practical machinists.

In the department of civil engineering the course extends over four years, as follows:

First year: Analytical geometry; descriptive geometry, with application of same; elementary mechanics; epipedometry, with practical application of same; physics; chemistry; mechanical drawing, and exercise in the use of arms.

Second year: Differential and integral calculus; chorostathmesis, with application of same; building and building materials; road making; mineralogy and geology;

theoretical mechanics; history of art; mechanical drawing, and exercise in the use of arms.

Third year: Applied mechanics, bridge building, house building, architecture, mechanology, forestry, æsthetics, mechanical drawing, and exercise in the use of arms.

Fourth year: Harbors, railroads, house building, architecture, governmental law, bookkeeping, mechanical drawing, and exercise in the use of arms.

In the department for machinists the course is as follows:

First year: Analytical geometry; descriptive geometry, with practical application of same; elementary mechanics; measuring of buildings and machines; practice in the ironworks laboratory; chemistry; mechanical drawing, and exercise in the use of arms.

Second year: Differential and analytical chemistry; theoretical mechanics; house building; building materials; practice in the ironworks laboratory; mechanical drawing, and exercise in the use of weapons.

Third year: Applied mechanics; the steam engine and kinematic mechanics; house building; mechanology, with constructions; chemical technology; practice in the ironworks laboratory; mechanical drawing, and exercise in the use of arms.

Fourth year: Iron portions of bridges and houses; construction of machines; metallurgy of iron; practice in the ironworks laboratory; mechanical drawing, and exercise in the use of arms.

In the department for surveyors, master workmen, and practical machinists the course extends over two years and a half. The last half year is devoted entirely to practical exercises. The course for the two full years is as follows:

First year: Mathematics; elementary mechanics; descriptive geometry; epipedometry, with practical application of same; road making; mechanology; house building; building materials; mechanical drawing; practice in laboratory, and exercise in the use of arms.

Second year: Chorostathmesis, with application of same; measuring of buildings and machines; bridge building; the steam engine; forestry; mechanical drawing; practice in the laboratory, and exercise in the use of arms.

LIST OF PROFESSORS AT PRESENT TEACHING IN THE POLYTECHNEION.

In the school of applied arts.—Prof. A. Soules, applied mechanics; Prof. I. Argyropoulos, on railroads; Prof. I. Lazarikos, topography; Prof. I. Raptakes, building; Prof. I. Kolliniates, architecture; Prof. I. Hatzidakes, theory of mechanics; Prof. Kyparissos Stephanos, higher mathematics; Prof. A. Apostolou, descriptive geometry; Prof. I. Chrysochoou, harbors and hydraulics; Prof. T. Maltezos, steam engineering; Prof. P. Kyriakos, mechanology and construction of machines; Prof. E. Angelopoulos, road building and bridge building; Prof. A. Bousakes, applied chemistry; Prof. A. Chrestomanos, physics; Prof. K. Metsopoulos, mineralogy and geology; Mr. A. Balbes, curator in chemistry; Mr. N. Germanos, curator in physics; Mr. N. Karakastinides, curator in mathematics; Prof. L. Lantzas, mechanical drawing.

In the school of the fine arts.—Prof. N. Lytras, painting in oil; Prof. Georgios Broutos, sculpture; Prof. B. Lantzas, ornamental design and perspective; Prof. K. Bolanakes, thalassographia; Prof. G. Roilos, drawing from casts; Prof. N. Pherbos, engraving; Prof. D. Katerinopoulos, artistic anatomy; Prof. A. Kaloudes, tracing.

THE ODEION.

This is an establishment for the purpose of producing musicians, singers, and actors for the Greek stage, and also for preparing teachers of music for the different schools throughout the kingdom. As a school of preparation for the stage, it has not as yet produced any remarkable results, but as a school for teachers of music in the public schools it has done much good.

The system of instruction embraces five different departments—a preparatory

school, a school for instrumental music, a school for vocal music, a school for the theory of music, and a dramatic school.

In the dramatic school are taught enunciation, declamation, voice culture, calisthenics, nature and quality of dramatic personifications, rhythm and meter in language, personification of characters both theoretically and practically.

Beside these special courses all students at the Odeion must, unless excused on grounds of proficiency, take the history of music, the history of the theater, general literature, and the French and Italian languages.

Table showing the growth of the Odeion in a period of five years.

Year.	Number of students.	Hours of instruction per week.	Tuition money received (in drachmas).	Money paid out in salaries (in drachmas).
1890-91	98	132	5,336.00	14,503.95
1891-92	152	180	15,177.00	22,126.50
1892-93	163	227	26,429.00	28,029.50
1893-94	171	235	26,307.50	33,253.00
1894-95	198	251	29,812.00	35,402.50

THE ACADEMY.

Ever since they have become free it has been the dream of educated Greeks to have an organized body of learned men, such as those of the academies of France, Germany, and other countries of Europe. That wish has not been fulfilled. But although an academy of immortals does not exist in Greece, a suitable edifice has nevertheless been erected for their use. The building is the gift of a rich Greek, Baron Sina, of Vienna. The architect was Hansen. It is in Ionic style, and is perhaps the most beautiful of all the new edifices in Athens. It is entirely of Pentelic marble.

At present its chief use is to serve as a numismatic museum, where the immense and valuable collection of coins, ancient Greek and Byzantine, is preserved.

PRIVATE SCHOOLS.

Private schools are numerous, both for girls and for boys, and are of all grades, from the demotic to the gymnasion. Of these private institutions some are under special religious influence, but others and most of the private schools are different in no way from the regular schools, except for a more careful and parent-like watchfulness over the pupils in time of recreation, and greater solicitude for their conduct, etc. Some of the private schools also receive boarders, which the regular schools do not do.

The establishment of private schools is subject to no unpleasant restrictions on the part of the Government. The courses of studies must conform to what the Government requires, the teachers must possess a regular license, and the law concerning the teaching of religion must be obeyed. When these conditions are likely to be fulfilled, the formal permission to conduct a private school is immediately granted.

School terms begin and end at the time appointed by law. Examinations are conducted in the same way as in the public schools, and the department of education is represented on the board of examiners.

Whoever is found guilty of establishing or conducting a school without attending to all the requirements of the law, is subject to punishment under article 532 of the penal law of the Kingdom.

PRIVATE SCHOOLS UNDER SPECIAL RELIGIOUS DOMINATION.

Circumstances have brought it about that the modern Greeks identify their religion with their national existence. They love its magnificent ritual, its gorgeous ceremonial, its fine mysticism, its subtile dogma. Religion bound and binds them

all into one body. It identifies itself as a personal possession with every Greek, whether plebeian or aristocrat. * * *

Since the Greek loves his church so intensely, he naturally dislikes all destructive opposition to it. He may not see anything intrinsically bad in other forms of Christian worship, yet he dislikes them if they threaten to bring about the destruction of his own religion. On these grounds he is opposed to the introduction of foreign forms of Christianity into his country and among his people. He has ceased to desire to proselytize, thinking that the other varieties of Christianity are good enough in their own home. Since schools are powerful means for introducing new religions, he has always looked with suspicion on schools established under control of teachers of another religion. Viewing the matter from the Greek's standpoint, we wonder at his liberal leniency. The establishment of such schools has always been allowed, although at times there have been popular outbreaks against individual schools.

The first to establish schools of this kind were various orders of Catholic religions. The Jesuits, for instance, had excellent schools in Andros and Melos and Naxos and elsewhere in the seventeenth century.

Religious communities of nuns and sisters have also established schools in most of the large cities of Greek lands. In free Greece there are such schools in Athens, Patras, Kerkyra, Tenos, Naxos, and elsewhere. These schools are intended chiefly for the children of Catholic inhabitants, citizens, and resident foreigners, and no attempt at proselytizing is made. Though not intended for children of Orthodox Greeks, yet such parents often send their daughters to these schools in order to have them learn French, which is taught practically in these schools. This attendance of Orthodox children sometimes brings about unpleasant friction between the followers of the two religions, for at times there appears a suspicion of proselytizing, and this is forbidden expressly by the constitution. In 1869 and 1870 the Catholic schools of Kerkyra gave rise to such talk that the matter was brought before the Boulé in Athens. And under date of March 3, 1871, Mr. A. Petmezas, minister of education, issued a circular to the nomarchs of the country enjoining the strict inforcement of the law concerning schools under other religious influences. He emphasizes the fact that instruction in religion must be given by a teacher of the same religion as that of the pupils. (*Θεσμολόγιον*, I, pp. 391, 392.)

The most important school under Catholic management is the Leonine Lyceum in Athens (*Τὸ Λεοντειον Λυκειον*), established by Pope Leo XIII at the time of the celebration of his Golden Jubilee. The school is intended for the sons of Catholics. It ranks as a gymnasion, and its courses are fully in accordance with the requirements of the State. It has an excellent corps of professors.

Protestants have also established schools in Greek lands. In 1831 the Hill school was founded.

THE HILL SCHOOL.[1]

(*Τὸ Παρθεναγωγεῖον Χίλλ.*)

This school takes its name from its founders, Dr. and Mrs. Hill. On the 7th of December, 1830, Mr. and Mrs. Hill landed in Syra, one of the islands of the Greek Archipelago. They had been sent to Greece by the Missionary Society of the Protestant Episcopal Church. Mr. Hill, a graduate of Columbia College, New York, had studied theology in the seminary at Alexandria, Va., and was ordained a clergyman shortly before his departure for Greece. After living a few months on the island of Tenos, whither they had gone from Syra, they went to Athens, where, on July 18, 1831, they opened a school in their own house. The school prospered and did much

[1] See Service Commemorative of the Life and Work of the Rev. John Henry Hill, held in Calvary Church, New York. New York Bible House, 1882.

good. The Hills, at the advice of the missionary society, and with their own good taste, supported by their knowledge of how the Athenians felt toward proselytizers, carefully abstained from meddling with the religion of their pupils. Still, since religious exercises were held in the school, such as the reading of portions of the Bible, the recitation of the Nicene Creed, the Lord's Prayer, etc., the Greeks felt uneasy. This suspicion grew into open attack in 1842, led and encouraged by the Αιών, one of the most influential papers of Athens at that time. However, the storm blew over and the school continued.

Almost from the beginning the Hill institution consisted really of two schools—one a free school supported from America, and the other a private school supported by its income from the pupils. This private school continues to the present time, and is now under the management of Miss Masson. The free school is also still in existence, and is under the management of Miss Muir.

In 1869 Dr. Hill resigned the control of the free school on account of his age. He died at Athens, July 1, 1882. The Greek Government honored his funeral, and the common council of Athens resolved to erect a marble column in memory of his services in behalf of education.

Two years later Mrs. Hill died and was buried beside her husband in the English cemetery at Athens. An account of her funeral was sent to the State Department at Washington by Mr. Eugene Schuyler, then minister to Greece, under date of August 6, 1884. He mentions the honors shown her and the sympathy expressed.

After the death of its founders, it was decided to continue the private school as a memorial school. Three thousand pounds sterling were raised, and with this the school property was purchased. The private school is not now under the care of the mission, but is supported entirely by the tuition fees and an occasional gift from America.

During the scholastic year of 1896–97 this private school accommodated 30 boarders and 120 day pupils. In spite of the fact that the school is sadly in need of funds, it continues to retain its high standard under the prudent control of Miss Masson. Its pupils always excel in the examinations.

TURKISH AND JEWISH SCHOOLS IN THESSALY.

After the addition of Thessaly and a small portion of Epeiros to Greece in 1881, the Greek Government immediately devised means of providing for the education of such of the inhabitants of the new provinces as were not of the Greek faith. These were Mussulmans and Jews.[1]

The Government made provision that wherever the size of a Jewish or Mussulman community warranted it a special school should be established for them. In the Jewish schools were to be taught, along with the courses of regular Greeks schools, lessons in Hebrew and in religious instruction by teachers appointed by the Jewish church authorities. Likewise in the Mahometan schools were to be taught the Turkish language and the elements of Persian or Arabic, together with the tenets of the Mahometan religion, by teachers appointed by Mahometans in the different villages. Greek, however, and the other common branches were to be taught by teachers possessing the qualifications demanded for a teacher in the other parts of the Kingdom.

This shows the generosity of the Government in matters of education. In Kerkyra, also, there is an excellent Jewish school which receives aid from the State.

ECCLESIASTICAL SEMINARIES.

Since the church is such an essential part of Greek life and nationality, it is quite natural that provision should be made for the betterment of the intellectual condition of its functionaries. * * *

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[1] See Θεσμολόγιον, I, pp. 137–139.

One of the first cares of the governor, Kapodistrias, was to establish a seminary on the island of Poros, in the monastery of the Ζωοδόχος Πηγή, or Life-giving Fountain. The school was to be supported from the revenues of the monastery. But the school was not received with favor by the clergy. It was not a school for theology, but merely a school for elementary studies. It was not intended to make priests scholarly, but merely genteel. The school ceased to exist shortly after the death of Kapodistrias.

A greater and more lasting foundation for the good of the church is due to Georgios Rizares. (See Τὰ κατὰ τὴν Ριζάρειον Ἐκκλησιαστικὴν σχολὴν ἀπὸ τῆς συστάσεως αὐτῆς. ἐπιμελείᾳ Νικολάου Ράδου. ἐν Ἀθήναις, 1891.) Georgios Rizares and his brother Manthos were natives of Monodendrion, near Zagori, in Epeiros. In 1806 they began a successful career as merchants in Moscow. They were known from the very beginning of their career as philanthropists. In 1814 they established a Hellenic school in their native town and supported it until the outbreak of the revolution. They gave large sums of money to Alexandros Ypsilantis and to the Philike Hetæria. They gave money for the freeing of captives. They defrayed the expense of the editing of Greek texts, etc. But their most lasting work was the founding of the seminary. Georgios Rizares, in memory of his brother and himself, gave a sum of money large enough to build the institution and to support 20 students. It was dedicated May 15, 1844. King Otho, with his ministers, was present. The bishop of Attika, Metaxas, performed the ceremony. In the following year it opened its doors to students. It is modeled somewhat after the Catholic seminaries of Europe.

Candidates are received into the Rizareion on the following conditions: The applicant must be a citizen of Greece. Ten exceptions, however, are made in favor of students from Zagori. He must be not less than 15 years old and not more than 18. He must be of sound mind and body. He must have completed the course given in the Hellenic schools. He must declare his intention of taking orders; if afterwards he change his intention, he agrees to pay an amount equivalent to what is ordinarily spent on each scholar.

The course of studies given in the Rizareion covers five years. Of these, the four under courses correspond to the courses given in the gymnasia with the addition of such studies as candidates for the priesthood should also pursue. The fifth year is devoted to purely theological studies.

The seminarists live in community life. They study in common halls, eat in a common dining hall, sleep in common dormitories, take recreation together, etc. No student may leave the premises without permission. At a regular hour every afternoon all walk out into the city in a body, or to some suburb. All wear robes of the same pattern—a black cap without peak and with a flat top, a black loose cassock held neatly by a blue girdle, and a black loose long coat with flowing sleeves worn over the cassock.

From the end of June up to the 25th of August the seminarians enjoy vacation from classes, but they are not free to leave the institution and spend their holidays elsewhere except for some strong reason, such as ill health. All are expected to stay at the seminary and to continue to study regularly every day, although their freedom is greater than in the school season.

The priests produced from the Rizareion are destined for the higher ecclesiastical positions. Greece is not able to assume the expense of educating all of her clergy so sumptuously. For the simpler education of other candidates for the priesthood, the Government established in 1856 three other ecclesiastical schools (Ἱερατικαὶ Σχολαί), one in Syros, one in Chalkis, and one in Tripolis.

The Catholics of Greece educate their clergy either in schools within Greece itself, especially in the islands, where most of the Catholics live, or in the theological schools of Rome and Paris. In Greece itself the Catholics have seminaries at Syros, Naxos, Tenos, and elsewhere.

The Protestants in Greece educate their clergy abroad, chiefly in America.

SCHOOLS FOR NEEDY BOYS.[1]

In Greece, as elsewhere, there are many young boys that on account of having to earn their own living, or even to support some one else—a mother, a blind father, or a sister—have no time to attend a day school. In the larger cities provision has been made for these unfortunates. Night schools have been established for their special benefit in Athens, Patras, Kalamata, Zakynthos, and other cities. The Syllogos Parnassos can count among its noble works the practical aid it has given to these schools.

Since Athens is the largest city of Greece, and since it is common for little waifs to come from all the provinces to Athens in order to find occupation, a school of this kind is more necessary in Athens than in the other larger cities. The school for needy boys in Athens is under the protection and direction of the Syllogos Parnassos. It is governed by a board of nine elected by the Syllogos from among its own members. This board appoints the teachers, and in general oversees the management of the school. Text-books and writing material are furnished free to the pupils.

In 1891–92 this school gave instruction to 1,233 pupils, of whom 146 were Athenians, 264 from Megalopolis, 156 from Korinth, and 137 from Makedonia in Turkey.

According to the regulations of the school, no pupils are admitted younger than 5 years, nor older than 20. In this same year, however, by special permission, a few were allowed to enjoy the privileges of the school although older than 20 years. The following table shows the age of the pupils for that year:

Number of pupils from—	
5 to 10 years of age	120
10 to 15 years of age	826
15 to 20 years of age	260
20 to 25 years of age	23
25 to 30 years of age	2
Pupils aged 30 or more years	2
Total	1,233

According to occupation there were—

Day laborers	54
Boys that carried purchases home from the markets	125
House servants	117
Hod carriers and builders' assistants	83
Bootblacks	306

Carpenters, shoemakers, blacksmiths, coppersmiths, etc., were represented also.

These night schools can not be classed with any other schools of the Kingdom. Such branches are taught as may be of most practical assistance to these working boys, namely: Religion, Greek language, mathematics (chiefly arithmetic), Greek history, geography, natural history, writing, and vocal music.

The full course of instruction extends over a period of five years. Instruction is given every week-day evening for two and a half hours. Attendance in these schools can not be regular. In the year 1891–92, 1,233 pupils were enrolled, but the average daily attendance was 381. Of course it must be remembered that not all of the enrollments took place at the beginning of the year, in October, but extended throughout the entire year, at least up to the beginning of May.

At the end of the year mentioned, 269 boys presented themselves for examinations, either to be promoted to a higher class or to receive a testimonial that they had completed the course. Eleven received such testimonials, six with the grade of *ἄριστα*.

On two Sundays of each month the pupils attend church in a body, led by some of the older pupils. Twice a year the director of the school takes care that all go

[1] See *Ὀργανισμος τῆς ἐν Ἀθήναις Σχολῆς τῶν Απόρων Παίδων. ἐν Ἀθήναις*, 1892.

to the sacrament of confession. The health of the pupils is also cared for. They receive free treatment from two physicians appointed from among the members of the syllogos. They also receive free all medicines that these physicians prescribe.

SOCIETIES ESTABLISHED FOR EDUCATIONAL PURPOSES.[1]

Many are the societies (Ἑταιρεῖαι, Σύλλογοι, Λέσχαι) established for the purpose of advancing education. The Greek is by nature a social character, and is ready to join clubs or societies for all kinds of purposes. Some of the more prominent educational societies in Athens are:

The Parnassos, Ὁ *Φιλολογικὸς Σύλλογος Παρνασσός*.

The Byron, Ὁ *Σύλλογος Βύρων*.

The Archæological Society, Ἡ *Ἀρχαιολογικὴ Ἑταιρία*.

The Society for Christian Archæology, Ἡ *Χριστιανικὴ Ἀρχαιολογικὴ Ἑταιρία*.

The Society for the Advancement of Education, Ἡ *Φιλεκπαιδεύτικὴ Ἑταιρία*.

The Society for the Diffusion of Greek Letters, *Σύλλογος πρὸς διάδοσιν τῶν Ἑλληνικῶν Γραμμάτων*.

The Musical and Dramatical Society, *Μουσικὸς καὶ Δραματικὸς Σύλλογος*.

The Historical and Ethnological Society of Greece, Ἱστορικὴ καὶ Ἐθνολογικὴ *Ἑταιρία τῆς Ἑλλάδος*.

The Pharmaceutical Society, Ἡ *ἐν Ἀθήναις Φαρμακευτικὴ Ἑταιρία*.

The Panhellenic Gymnastic Society, Ὁ *Πανελλήνιος Γυμναστικὸς Σύλλογος*.

Ladies' Society for the Advancement of the Education of Women, *Σύλλογος Κυριῶν ὑπὲρ τῆς Γυναικείας Παιδείας*.

The Physicians' Society, Ἰατρικὴ *Ἑταιρία*.

The Society of the Friends of the People, *Ἑταιρία τῶν φίλων τοῦ λαοῦ*.

The Koraes, Ὁ *Κοραῆς*.

The *Φιλεκπαιδευτικὴ Ἑταιρία* was founded through the efforts of Ioannes Kokkones, Georgios Gennadios, and Misael Apostolides. (See Ἡ *Πεντηκονταετηρις τῆς Φιλεκπαιδευτικῆς Ἑταιρίας ἐν Ἀθήναις* in the Ἑσπερος for November 13, 1886. See, also, *Θεσμολόγιον*, I, pp. 122, 123.) It is governed by a constitution formulated in 1836 and remodeled in 1882. It has for its object the advancement of the people by education and culture. It pays especial attention to the education of girls.

It has established young ladies' academies and other schools; has defrayed the expenses of worthy students, especially girls; it has given prizes for best editions of text-books and other books useful for the purposes of education; it has borne the expense of publishing such books; it has supplied needy schools with apparatus, etc.

The society does all this by means of funds made up from the annual fees of members (18 drachmas a year) and the gifts of benefactors and others, the income from the property it owns, the initiation fees of members (6 drachmas), etc.

The Musical and Dramatical Society aims at the founding and sustaining of a national theater. The society was founded in 1871. It interests itself in the work done in the Odeion. The society is yet far from attaining its purpose, yet it will finally bring good results. The theater has always been a favorite institution with the Greeks. And the restoration of the Greek theater to the high rank that it deserves is justly one of the aspirations of the cultivated Hellenes of to-day. It will not be uninteresting to add a short account of the first attempt to produce a Greek play in Athens since the acquisition of freedom. (See the Ἀτλαντίς for December 19, 1896.) Ever since the gaining of freedom the Athenians had enjoyed the pleasures of a theater, but the dramas produced were foreign affairs, in Italian or French, or at best translations into modern Greek from some European language. The first man that determined to put a stop to this sorrowful state of affairs

[1] See Les Syllogues Grecs, par Albert Dumont, in the Annuaire des Études Grecques, 1874, p. 528, and Des Syllogues Grecs et du progrès des études litteraires dans la Grèce de nos jours; par le Marquis de Queux de Saint-Hilaire, in the same Annuaire for 1877, p. 287 ff.

was Alexandros Rizos Rangabes. In 1853, Rangabes, already known as professor, scholar, writer, diplomat, soldier, wrote a drama called the Vigil, Ἡ Παραμονή. He determined to have it produced on the stage. There were no professional actors in Athens, so he had to engage the kind services of amateurs. Rehearsals began, and all Athens was impatient for the proud event of seeing a real Greek play. The play was to be given in the theater of Bonkoura, and the proceeds were to be spent in buying clothing for the Greek soldiers in Peta. However, in the play there were certain passages referring to the action of Austria against the first proclaimers of the struggle for liberty. These passages displeased the Austrian ambassador, who announced that if the play were produced he would immediately depart from Athens. Rangabes then cut out the offensive passages, and after a long delay he received permission to proceed. King Otho and Queen Amelia were to be present at the performance, but on the morning of the evening on which the play was to be given there came a message to Athens that the Greek garrison at Peta had been attacked by the Turks and fallen in slaughter. So great was the gloom that spread over Athens that no one thought of the play, and the Vigil was never produced.

But, nevertheless, other Greeks, and Rangabes himself, soon had the satisfaction of seeing their Greek plays produced in Athens.

Popular dramas at present are Οἱ Μυλωνάδες, The Millers, a comedy; Ἡ Κατάρα τῆς Μάνας, The Mother's Curse; Ἡ Μήδεια, Ἡ Φαῖστα, tragedies.

Old classic dramas, such as the Oedipous Tyrannos, The Philoktetes, the Antigone, are produced from time to time.

The Society of the Friends of the People (Ἡ Ἑταιρια τῶν Φιλων τοῦ Λαοῦ) seeks by means of public and popular courses of lectures to instil useful and entertaining knowledge of a patriotic and elevating kind into the hearts of the workingmen. These lectures are given in the evening, when such men are free. Each year's course consists of about 125 lectures. The lectures are arranged in groups, each group forming a connected series of instruction. Popular topics are the history of Greece, and instruction in the natural sciences. Some of the best teachers of Athens find time to belong to this association, and lend their aid to the cause of educating the working classes.

THE HISTORICAL AND ETHNOLOGICAL SOCIETY.

(Ἡ Ἱστορικὴ καὶ Ἐθνολογικὴ Ἑταιρία.)

The Historical and Ethnological Society was founded in 1882. In the following year it began to publish a valuable periodical containing the results of its researches. In the prologue to the first number Mr. Timoleon Philemon, the first president of the society, explains the reason why the society came into existence, and the necessity of its continuing to exist. The object of the society is to study the life of the Greeks from the time when they ceased to be an independent people down to the time when they again regained their freedom. The society in its studies excludes no phase of life whatsoever. Art, literature, morals, social relations, superstitions, religion, politics, customs, etc., are all to be searched for in order to discover the true history of the people, and to show scientifically the exact relation of the present Greeks to those of all the past.

The society possesses a museum, in which it keeps all such relics and mementos of the ages covered by the studies of the society as it succeeds in collecting. This collection includes garments of men and women, medals, coins, seals, musical instruments, manuscripts, books, letters, bulls, etc.

THE ARCHÆOLOGICAL SOCIETY.

(Ἡ Ἀρχαιολογικὴ Ἑταιρία.)

The Archæological Society was founded in 1837 through the zeal and determination of Kyriakos S. Pittakes and Alexandros Rizos Rangabes. With limited means at its disposal this society has accomplished wonders. Excavations have been scien-

tifically and successfully carried on at many different places, notably at Athens (on the Akropolis), Elevsis, Epidavros, Tanagra, Mykenæ, Lykosoura, Sparta, and Rhamnous.

Since its foundation the society has published the Ἀρχαιολογικὴ Ἐφημερίς as its organ. The society twice almost ceased to exist on account of lack of funds, and accordingly the publication of the journal was twice interrupted. It is now published quarterly in splendid style and with scientific accuracy. Beside the Ephemeris, the society also publishes its Πρακτικά from time to time, in which the reports of the various officials of the society make known the progress of the work done under their special charge.

THE SOCIETY FOR CHRISTIAN ARCHÆOLOGY.

This society was founded to supplement the work of the excellent Archæological Society; for the Archæological Society, completely wrapped up in the study of the older monuments, not only found no time to devote to the remains of later times, but even often showed positive neglect or even contempt for the monuments of mediæval Christianity, monuments which have an absolute value in the history and fate of the Greek people. Often, in order to facilitate research for classic finds, Christian monuments were unnecessarily sacrificed. To correct this abuse the Society of Christian Archæology was founded and has its place. The society has much work before it. It intends to study and care for edifices of Byzantine architecture, mosaics, inscriptions, frescos, coins, medals, manuscripts, etc. As yet, however, through lack of means, this society has done comparatively little, compared with its older classic sister, the Ἀρχαιολογικὴ Ἑταιρία. The Marquis of Bute has been one of its most devoted friends.

FOREIGN ARCHÆOLOGICAL SCHOOLS IN ATHENS.

These schools really do not need to be mentioned here, as being outside of the system of schools intended primarily for Greeks. They are supported from abroad, are conducted by foreigners, were established by foreigners, and are intended for foreigners. Yet their work is so excellent, and is so much in line and in sympathy with the work of the Greek archæological societies and is open in a certain way to Greeks, at least as regards use of libraries and other collections, that they should not be left unmentioned even here.

There are now four such schools in Athens. The French and German schools are supported by their respective Governments; the British school receives partial support from the Government; the American school is supported entirely by the Archæological Institution of America and by private contributions.

These schools are simply groups of young investigators under the guidance of older specialists.

THE FRENCH INSTITUTE.

The French school was founded in 1846 under the title of the École Française d'Athènes. Since 1876 it is known as the Institut de Correspondance Hellénique. The school devotes itself chiefly to archæological studies. It has carried on excavations with eminent success at various places—e. g., at Delos. At present the French school is conducting excavations at Delphi. The work is being done with characteristic thoroughness. Here it is that the fragments of hymns to Apollo, with ancient musical notation, were discovered. In 1890 the French Government appropriated 500,000 francs for the inaugurating and carrying on of these excavations.

The school is under the guidance of a director appointed by the Government. He directs the work of the school as a whole and also gives advice and assistance to the individual members. The members are six in number. No one is eligible for

membership unless he be a professor extraordinary in the Academy. Each member remains at Athens for a term of three years. Some of the best French Hellenists, philologians as well as archæologists, have been members of this school.

Up to the year 1877 the work of the school and its results were made known through different periodicals, especially the Revue Archéologique. But since that year the school has published a monthly periodical of its own, the Bulletin de Correspondance Hellénique. To this publication there has been added, since 1881, the Bibliothèque des Écoles d'Athènes et de Rome.

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The German Archæological Institute at Athens was modeled after its elder sister, the institute at Rome. In 1874 the Roman school, then known as the Royal Prussian Archæological Institute, was changed into the Imperial German Archæological Institute, and in this same year a branch school was established in Athens. The branch, however, grew so rapidly in importance that in 1887 it was raised to equal rank with the institute at Rome, and since that year is known as the Athenische Abtheilung des Kaiserlich Deutschen Archæologischen Instituts.

The institute is now located in a fine edifice built by Schliemann expressly for the purpose. It is under the management of two secretaries. These are now Prof. Wilhelm Dörpfeld and Dr. Paul Wolters. Five stipendiaries are kept in the institute at Athens. To be eligible as stipendiary one must have already received the doctorate.

The library of the institute, an excellent one for archæological work, took its beginning from the books collected by Arthur von Velsen, who died in Athens in 1861 as secretary of the Prussian embassy.

The magnificent work of the institute is evident in its publication, the Mittheilungen des Kaiserlich Deutschen Archæologischen Instituts, Athenische Abtheilung. The publication was begun in 1876, and appears as a quarterly. The language of the publication is mostly German. Occasionally, however, an article contributed by some one of other nationality appears in the writer's own vernacular, e. g., Greek or English.

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The school is under the direction of a committee, which meets in London, consisting of Hellenists and art lovers. In Athens the management is in the hands of a director.

The library of the school is a very good one.

Successful excavations have been carried on by the school at different places in Greece and also in the island of Kypros.

THE AMERICAN SCHOOL OF CLASSICAL STUDIES.

Of all these archæological schools at Athens the American School of Classical Studies is dearest to us. From the following account it will be seen that its work has been such as to make us feel proud of it and its projectors and managers.

It was founded by the Archæological Institute of America, and is under control

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[1] See Michaelis, Geschichte des Deutschen Archæologischen Instituts, 1828–1879. Berlin, 1879, pp. 164 ff.

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of that institution. Soon after the founding of the Archæological Institute, in 1879, its members began to feel that on account of the peculiar importance of making research in the old classic lands special measures should be taken to permanently establish some means of carrying out such investigations. The land thus first favored was Greece.

Through the cooperation of nine of the first colleges of America, each of which promised to contribute $250 annually for ten years, the school at Athens was established, and in the autumn of 1882 Mr. W. W. Goodwin, professor of Greek at Harvard University, went to Athens as the first director of the new school.

The founders of the school did not limit its scope to archæology, foreseeing that, although most of the best work done would be in archæology, yet many a young college graduate might profit much by a year's philological or historical training there in the very center of old Hellenic life.

After a few years of existence the school became prosperous enough to warrant the erection of a house adapted to the needs of the school. The Greek Government, with characteristic generosity, donated the grounds, and in 1888 the fine new building was ready for occupation.

Since that time American archæological or classical students and scholars visiting Athens have found at the foot of the southeast slope of Lykabettos an institution that they may take just pride in. They find there an excellent library, adapted especially for the study of the art, topography, epigraphy, language, and literature of Ancient Greece. They find a small knot of young, enthusiastic men, who find highest delight in delving, now by book and now by spade, into the marvelous life of that people which has been the civilizers of the world.

The school sends out two sets of publications—the Annual Reports and the Papers of the American School of Classical Studies. The American Journal of Archæology and of the Fine Arts also publishes much of the work of the school.

The management of the school was, during the first six years of its existence, in the hands of a director sent out annually from one of the cooperating colleges. Now, however, the director is appointed for a period of five years. The present director, Prof. Rufus B. Richardson, whose term of five years would have expired this year, has been reappointed. Thus the school falls under the direction of a man who, by continuous residence in Greece and by unbroken application to scientific work there, will bring about the best results that are possible. Beside the director there are two other officers, a professor of literature and a secretary. These are appointed annually. The professor of literature for the year beginning October, 1897, is Professor Emerson, of Cornell.

Membership in the school is granted to graduates of cooperating colleges and to all other American students that are deemed to be sufficiently prepared for the work done in the school.

The Americans have made important excavations at Sikyon, Thorikos, Ikaria in Attika, at the Heraeon near Argos, at Eretria in Evboea, and elsewhere.

GREEK SCHOOLS OUTSIDE OF GREECE.[1]

Greek schools outside of the Greek Kingdom have been made to conform as nearly as possible with the schools within the Kingdom, so that in the Turkish Empire, for instance, we find Greek demotic and Hellenic schools and gymnasia of the same rank as those of Greece. Many of these schools are older than the war of independence.

The teachers in these schools of Grecia Irredenta have most of them studied at Athens, whither they are sent at the expense of communities, or as beneficiaries of scholarships established by patriot Greeks. Young Greeks of Turkey, also, study in the universities of Europe, supported by such scholarships.

Just as in free Greece attention is being paid to the education of girls, so also in the Greek communities of Turkey is the same being done. Young ladies' academies,

[1] See Ἡ Πύλη καὶ ἡ ἐν Τουρκίᾳ Ἑλληνιμὴ Παιδεία (in the Ακρόπολις for June 23, 1884).

Παρθεναγωγεῖα, have been established in the larger cities by rich benefactors. Of these the Zappeion at Constantinopol may be mentioned. *Το Ζάππειον Παρθεναγωγεῖον ἐν Κωνσταντινουπόλει καὶ ὁ ἱδρυτὴς αὐτοῦ*, in the *Ἔσπερος*, VII, pp. 182 ff.

WRITERS ON PEDAGOGY.

Although few scholars among the modern Greeks have devoted their time exclusively to a study of pedagogics, yet not a little work has been done in this science.

In the year 1820 a well-known and successful scholarch, K. Koumas, who taught in Smyrna, published at the end of his work on philosophy a theoretical treatise on pædagogy.

Adamantios Koraes, about whom more will be said in the chapter on the language question, never taught in any kind of school, and yet he must be regarded as knowing well the theory of teaching. His views on pedagogy are scattered throughout his various writings. He strongly advocated the introduction of European methods into the schools of the East, and at different times used his influence in trying to induce wealthy Greeks to send young men to Switzerland and other places in order to learn the new educational systems that at that time were being much talked about.

The first practical book on pedagogics published in free Greece was the *Ὁδηγός* of Kokkones. This *Ὁδηγος*, or Teachers' Guide, was merely a translation from the French. It has several times been revised and republished, and has never ceased to be one of the best known books to every teacher in Greece.

In 1839 a journal called *Ὁ Παιδαγωγός* began to appear. It was intended chiefly for teachers, and contained, with other matter, a good amount of valuable pedagogical material. After a short time, however, the journal ceased to exist.

In 1857 there appeared another work that can lay claim to being classed with pedagogical literature. This was the *Ὁδηγός τῶν Φοιτητῶν*, or Students' Guide, by Professor Rousopoulos, of the university. It contains exhortations to scientific education, a scientific method of studying, and the laws of the university.

In 1865 G. G. Papadopoulos published a Practical Guide for Teachers in the Demotic Schools, *Δοκίμιον Πρακτικῶν Ὁδηγιῶν πρὸς τοὺς Διδασκάλους τῶν Δημοτικῶν Σχολείων. ἐν Ἀθήναις.*

In 1878 the *Διδασκαλικὸς Σύλλογος*, an organized society of teachers, began to publish a pædagogical journal called *Πλάτων*. It was continued until 1890, appearing once a month during that time. The intention of the society in publishing and supporting this journal was to better the condition of teachers in the preparatory and middle schools, and to better the schools themselves by diffusing among the teachers a more scientific knowledge of the methods of teaching. Among the many good articles that appeared in this journal, I make especial mention of a series of articles written by Mr. Blasios G. Skordeles, entitled *Ἡμερολόγιον Δημοδιδασκάλου, ἤτοι ἡ Παιδαγωγία ἐν τῇ Πράξει*, "A Teacher's Diary, or Pedagogy in Practice." Mr. Skordeles, in this diary, shows how a teacher may meet and solve the various perplexing problems he meets with in the performance of his daily routine of duty. The diary has been also published in book form.

During the last few years a periodical has been published, called *Ἡ Διάπλασις τῶν Παίδων*, Training of Children. It treats in a practical way of many questions connected with elementary education.

Another important book is by S. M. Olympios, treating of how to teach children to express their ideas both orally and in writing. A second edition of this excellent work came out in 1886 (cf. *Ἑβδομάς* for August 10, 1886, p. 30). The title of the book is *Ἐγχειρίδιον Προφορικῶν καὶ Γραπτῶν Ἐκθέσεων Ἰδεῶν· ὑπὸ Σ. Μ. Ὀλυμπίου, πρὸς χρῆσιν τῶν Δημοτικῶν καὶ Ἀστικῶν Σχολείων.*

The Herbartian system has found a warm advocate in Mr. M. Bratsanos. He has written a Theoretical and Practical Guide for Demotic Schools according to Herbartian Priciples, *Θεωρητικὸς καὶ Πρακτικὸς Ὁδηγὸς τοῦ Δημοτικοῦ Σχολείου κατὰ τὰς ἀρχὰς τοῦ Ἑρβάρτου.* The work is mentioned in the *Ἑβδομας* for August 10, 1886, page 383.

An exceptionally valuable publication is Pantazides' Pedagogics, *Γυμνασιακὴ Παιδαγωγικὴ προς Χρῆσιν τῶν τε Φοιτητῶν τῆς Φιλολογίας καὶ Πάντων 'εν γένει τῶν Διδασκάλων τῆς Μ'σης Εκπαιδεύσεως. εν Αθήναις*, 1889. Professor Pantazides has taught this science for years in the university.

A proof of how seriously interested the Greeks are in the various theories of education is shown by the fact that, although money is very scarce with them, they nevertheless from time to time attempt to devise some means of sending young men to Europe to make special study of pedagogics. Prizes are also given for best treatises on pedagogical subjects. For instance, in 1883 a prize of 2,000 drachmas, the *Μαραθειος αγών*, was offered for the best work on this subject. (See *Πλάτων*, vol. IV, pp. 106, 107.)

TEXT-BOOKS.

Before a text-book may be introduced into the schools it must be approved of by a committee appointed for that purpose by the minister of education. This committee decides upon the suitableness of all text-books, and also determines the maximum price at which the book is to be sold. The law excluding all unapproved books is from November 24, 1867. Article 8 of that law states that every teacher in a public school who violates this law will be subject to a fine of from 50 to 150 drachmas, and must refund to the pupils all money that they may have spent at his advice for unapproved books. In case of a second offense he is dismissed. A teacher in a private school, if guilty of the same offense, loses for one year his license to teach. (See *Θεσμολόγιον*, II, p. 197, note.)

Certain books, such as the original texts of Greek and Latin classic authors, are not subject to this regulation. No text-book for religious instruction is admitted to competition unless it bear the approval of the holy synod.

Every four years books are submitted for approval. Only one book of each kind is approved. The approval of a new book cancels the previous approval of other books.

Just as the system of schools is an imitation of the European system, so also is it common for European text-books to serve as models for the text-books used in Greek schools. This has naturally led to the mere translation of many European text-books into Greek. The period of mere translation, however, is fortunately passing away for most sciences, and the home products are found to be, if not always quite so modern in scientific qualities, at least better adapted to circumstances.

EDUCATION FREE.

The democratic principles of the Greeks make them averse to all favors that might be exclusively available to a special class of citizens. This principle makes them object to having any part of education purchasable by those only who have means. They think that no one should be debarred from any school, even the university, by being unable to pay for his tuition, and this the more so since the Greeks look on education as having a "national" purpose. In his view, education of the Greeks advances the cause of Hellenism. Accordingly no Greek should be barred out from this field by poverty; and all education, from the lowest class in the demotic school up to the highest in the university and the polytechneion, is, by the popular interpretation of the constitution, to be given free of cost.

However, during these last years, debt has pressed so heavily on the brave little Kingdom that it has been found necessary to raise taxes even from schools. And in virtue of a law of 1892 (*νόμος* BND of that year), each student pays a tax by writing out his application for matriculation, etc., on stamped paper, so that now the student of the Hellenic school pays about 25, the student of the gymnasium 50, and the university student 100 to 150 drachmas a year. This tax has met with opposition, especially from the students of the university, on the ground that it is unconstitutional.

THE PRINTING PRESS IN GREECE.

After the summary disposal of the printing establishment set up in Constantinopol by Kyrillos Loukaris we hear of no other attempt to print anything among the Greeks of the Empire until the year 1820. In that year Firmin Didot, who had returned to Paris enchanted with what he had learned about the Greeks during his stay in Kydonia and other parts of the East, sent two printing presses, with type and other necessaries, one to the school at Kydonia, which he loved so intensely, and the other to the town of Chios. Chios received this gift through the influence of Koraes, who was at that time in Paris and was an intimate friend of Didot. The busy Greeks immediately began to issue pamphlets and booklets from both of these presses, but their joy was short-lived. The Turks destroyed the press at Kydonia in the year 1821, when they burned the village; they destroyed the one at Chios in 1822, when they perpetrated their awful butcheries of that year. (For a description of these massacres read Loukis Laras, by Demetrios Bikelas.)

During the war of liberation presses were set up at various places, notably at Missolonghi, at Navplion, etc. Journals and not books were printed from these presses.

The first books printed in Athens came from the press of Andreas Koromelas, who had gone to Paris, and there in the establishment of Firmin Didot learned the business of printing. He came back to Athens, and in the year 1835 established a printing house. Letters in Greece owe much to him.

JOURNALISM IN GREECE.

Journalism is so closely connected with modern culture and education that it is impossible to omit it from the present treatise. So a brief sketch of Greek journalism from its first beginnings down to the present day will not be out of place. (See La Presse dans la Grèce Moderne depuis l'indépendance jusqu'en 1871, par le Marquis de Queux de Saint-Hilaire, in the Annuaire des Études Grecques, 1871, pp. 147 ff. See also Το Ιωβελαῖον τῆς Αμαλθείας, in the Εβδομάς for July 30, 1888.)

After the fall of Venice, in 1797, Vienna became the literary center of learned Greeks in Europe. Here it was that the first Greek journal made its appearance. It began in 1793, being edited by the brothers Poulion. It did not last long. The last number appeared on June 28, of the same year.

In 1811 another Greek paper was started in Vienna, the Εἰδήσεις διὰ τὰ Ἀνατολικὰ Μέρη, or News for Eastern Parts, which was followed in the next year by the Ελληνικὸς Τηλέγραφος. These short-lived attempts were overshadowed in importance by the scholarly and influential Λόγιος Ἑρμῆς, begun in 1811 by Anthimos Gazes. It continued to exist and do good until the very eve of the war for independence, which it did much to bring about. It ceased in 1821.

Paris also at this time was the rendezvous of a number of learned Greeks. Long is the list of Greek journals that came into brief existence in Paris. The Ἀθηνᾶ was founded in 1818, the Μουσαῖον in 1819, and the Μέλισσα in the same year.

After Greece became free the chief raison d'ètre of the editing of Greek papers in foreign countries passed away. However, other reasons arose making it important that some such papers continue to exist. Accordingly, since that time Greek journals and periodicals have been published for longer or shorter periods in various places of Europe. In Paris we find the Πολύγλωττος and the Μύρια Ὅσα, in 1868, and the Ἐθνικὴ Ἐπιθεώρησις in 1869. In Great Britain was published the Βρεττανικὸς Ἀστήρ, by Stephanos Xenos; in Leipzig the Κλειώ, and in Triest the Νέα Ημέρα. This last paper was founded in 1855. It still flourishes as a weekly under the masterful editorship of the scholar and litterateur, Alexandros Byzantios.

Even in Turkey the Greeks were finally allowed to have their newspapers. Perhaps the first such was the Ὀθωμανικὸς Μηνύτωρ of Constantinopol. In 1838, Constantine Rhodes, a warm Philhellene, established at Smyrna the Αμάλθεια, which still exists and does good.

Within the territory now occupied by free Greece the first paper published was the Αστυκη, which began in Keryka in the year 1802. It was short-lived.

While Missolonghi was being besieged by the Turks, the first paper printed under what may be called free Greek government made its appearance. It was edited by the Swiss Philhellene Mayer under the title of Χρονικὰ Ελληνικά. It was championed and supported by Stanhope, who had come from England to Greece for the express purpose of starting newspapers, schools, etc. The Χρονικα began to appear in January of 1824. It was a biweekly. It is now valuable for a source of information for facts concerning the war, and on this account has been reprinted. It was in this paper that Trikoupes's famous funeral discourse over the remains of Lord Byron was published.

Before the appearance of the Χρονικά of Missolonghi, matter had been printed in Greece, but no newspaper seems to have been published. Prior to this time there was a press at Kalamata under the control of Ypsilantis, and another at Korinth, used for the printing of proclamations, etc. (See Stanhope's letter XVII in work cited above.)

Later in the same year, 1824, another paper came out in Greece, the Φίλος τοῦ Νόμου, published at Hydra. The editor was an Italian named Chiappa. Chiappa's outfit consisted of not much more than a small quantity of tpye. He printed the paper by inking the type by hand, and then taking the impression as printers take proof impressions. He was writer, editor, typesetter, proof reader, pressman—all.

In 1825 the Γενικὴ Εφημερις τῆς Ελλάδος was begun as the organ of the Government. At least it was the organ of Kapodistrias. Since 1835 the Εφημερὶς τῆς Κυβερνήσεως has been the official organ of the Government. During the reign of Otho it was accompanied by an official edition in German for the numerous Bavarians in Otho's service.

From the small beginnings described above the press in Greece grew with marvelous rapidity. In the year 1867 Greece sent to the World's Exposition a copy of all the papers published in the country. They were almost a hundred in number. Since that time the number has gone on constantly increasing. At present newspapers are published not only in Athens, Patras, Peiræus, and other large cities, but almost every town of any consequence has its paper, at least a weekly. These papers are small in size, but not in aspirations.

In Athens the principal papers to-day are the Εφημερίς, the Ακρόπολις, the Νέα Εφημερίς, the Παλιγγενεσια, the Πρωία, and the Νεολόγος Κωνσταντινουπόλεως. This last paper was until recently published in Constantinopol. But as a result of the late war the editor, S. I. Boutyras, thought that the proper place for a journal that wished to express its thoughts freely was not in the city of the Crescent.

Greece has also a number of periodicals. Among the best are the Παρνασσός, which is the organ of the Parnassus Club, and the Αθηνᾶ. The various sciences are represented by some special periodicals.

ILLITERACY AMONG THE MASSES.[1]

The modern Greek, like his classic ancestors, is by nature a searcher and inquirer. He is social, and likes to dispute and discuss. He does not resort to books for knowledge or entertainment as frequently as do the colder men of northern climes. It follows that the average Greek is not such a devourer of written knowledge as we would like to have him be. The percentage of downright illiteracy is perhaps greater than one would wish to see. Yet it is among the older men and among the women that illiteracy chiefly prevails. The older men are to be excused, because when they were boys Greece was still very young and had not yet developed her system of schools. The women owe their illiteracy to the fact that custom relegated them to household duties, and for housekeeping in Greece book knowledge

[1] See Περὶ βιβλίων καὶ τῆς Ἐξεως τοῦ ἀναγιγνώσκειν ὑπὸ Δημητρίου Βικέλα, in his Διαλέξεις καὶ Ἀναμνήσεις· ἐν Ἀθήναις 1893.

has not been in demand. We see in another chapter how the women of Greece are now beginning to vindicate their intellectual qualities in the field of higher education, as they vindicated themselves long ago in patriotic courage. Among the younger women the percentage of illiteracy is greater than among the younger men. Of the younger men indeed very few are unable to read. According to the statistics of 1885, two-thirds of the entire population were yet unable to read.

Since the Greek is a politician by nature, he loves to read political news more than any other kind. This explains the extraordinary number of daily journals published in the Kingdom. Light literature is read chiefly by the ladies. They like the European novels, which are translated for them in abundance. When the man reads a novel, he prefers one whose plot is connected with the history and traditions of his own country. The modern writers of light literature in Greece are sufficiently numerous, and have produced many a readable book.

THE LANGUAGE QUESTION.

The question of education in Greece can not be completely handled without devoting a chapter to their language. This might be true of education in any country, but it is especially true for Greece. In Greece, as in every country that possesses a literature, there exists a difference between the literary language and the spoken language. Again, every language spoken throughout extensive territory has a number of local varieties or dialects, and every literary language has a variety of forms, according as the writer uses a language more or less different from the spoken dialects.

In Greece there exists a clique of scholars who cry out that the literary language should be identical with the spoken. One of the prominent men of this school at present is Professor Psycharis, teacher of Greek in Paris. Psycharis is a scholar of note. He has written a number of excellent treatises dealing with the language question; but what attracted most attention was his book, Το Ταξιδι μου. He wrote it in what he regards as the correct language for a literary work. The book produces the same impression on a modern Greek as it would on an American if done into such English as would be a mixture of Louisiana plantation dialect with the language of the slums of New York enriched by stray words and phrases of New England Yankee dialect and vigorous phrases of the western cowboy together with a large amount of other slang from all parts of the English-speaking world. But not all the advocates of the "people's language" are as extreme as is Psycharis.

The followers of the opposite school write in a simplified and modernized form of the old Hellenic or Κοινή. This is the traditional literary language with such as have not sought to write in some form of ancient Greek. The writers of this language are not disturbed by the fact that there is a difference between their language and that of the illiterate. Many of them know German and English and Italian, and they see that in these languages there exists a like difference, and as great. Nearly all scientific books, text-books, journals, etc., are published in the language of these purists. Some poets, novelists, and other such writers often use the demotic for the same good reasons that poets and novelists do in other countries. But in Greece the evil is that these poets and novelists sometimes think that every good Greek should learn to speak their dialect.

The language of the purists, the Katharevousa, as it is called, is not of one rigid kind merely, but possesses many varieties from the Attic accuracy of a Kontos, the suppler grace of a Lampros, or a Paganelles, down to the looseness of a Rhoides. Of these varieties, however, each heartily condemns all the others. The writers mentioned here are all writers of prose. The same variety of language, however, exists among the poets that write in Katharevousa.

As early as the fifteenth century the dispute over what ought to be the literary language of the Greeks began. The difference between the literary and the spoken language had been growing greater century after century, because the writers per-

sisted in trying to write in ancient Greek. We all know that as soon as a country has a literature behind it worthy of study, just so soon is a difference created between the language of literature and that of ordinary life. How far the language of ordinary life should mold that of literature, and how far the language of literature should mold the language of ordinary life is a matter that depends on different circumstances. Of course to-day when the written page is so potent and universal a medium, and when every one is under the influence of the written word, it is clear that the written word will triumph over the spoken form in many cases where in other times the spoken word would have easily prevailed; but of course written learning will never keep free from influence from below.

Well then, the ever widening breach between the written language and the spoken dialects became a matter of serious discussion in the fifteenth century. One of the first determined defenders of the value of the people's language was the learned Nikolaos Sophianos, who flourished in the first half of the sixteenth century. He wrote a grammar of the common language, in the preface of which he says, addressing the Cardinal John, Prince of Lorraine, "Dum igitur hanc nostram quam vocant vulgarem linguam cum illa antiquorum confero Platonis Demosthenis Xenophontis et aliorum * * * reperi multis in rebus hanc nostram vetere illa minime inferiorem esse. Constat nempe verbis puris per manus (?) ab antiquissimo sæculo traditis et brevitate quadam mirabili tum regulis certis et paucis."

This same Sophianos wrote or translated other works, using the common dialect. At that time the demotic found but few such determined admirers as was he.

The growing determination of the Greeks to again become a free people had its influence on the language question. As a matter of fact, there existed no common and universal spoken language, if we except the language of the purists. The inhabitants of each separate valley had a peculiar way of speaking. But whenever one wrote something for all Greeks to read, what was to be done? Some believed that the classic language should be the common medium of communication among scholars; others preferred the ecclesiastical Greek; others more sensibly looked for some medium of communication that would be nearer to the language of the people. Those who wrote without knowing in what form they were writing, but followed their better thoughts, usually wrote in a form of the Katharevousa.

Each opinion had its warm defenders. The strife among them grew bitter and personal. At the beginning of the present century we find, for example, Koraes (see *Ἀδαμάντιος Κοραὴς ὑπὸ Διονυσίου Θεριανοῦ*) and his followers advocating that the written language be made up of such elements as are common to most of the dialects; that it be enriched not from other modern languages nor from local dialects of modern Greek but from the classic language, and that the classic language be used as a model as far as could be consistently done.

Koraes was attacked from all sides, but yet he had a larger following than any of his opponents. He was too fond of the vulgar language to suit Panagiotes Kodrikas, and too much inclined to be influenced by the ancient to suit Daniel Philippides. Nor could he find favor with the good-dispositioned Neophytos Doukas, who wished the learned to write in the language of the church as used in official letters, etc., in the patriarchate of Constantinopol, and in the writings of the church fathers and in the sacred liturgy.

But in the midst of this quarrelling the war for freedom broke out. It served as a cloak to smother the flames of dispute. Patriotism was stronger than love for intellectual polemics. But before the boom of war came Koraes had practically triumphed. He has since been regarded as the molder of the present Katharevousa.

Certain writers or scribblers attribute their lack of success in producing masterpieces to the imperfection of the medium they are compelled to write in. These vehemently advocate a return to the language of the peasants. They are not sufficiently numerous or influential to do great harm, but still they can produce uneasiness by their boisterous complainings. Sometimes their attempts are amusing, when, for example, after writing a poem or story in their favorite lingo, they find it necessary

to add annotations in order that the people may understand; and these annotations are always in the Katharevousa.

The various dialects are in many respects very beautiful. These dialects tell the history of the people. They are replete with myth and tradition and history. Although no one of them is worthy of being made the literary language of the entire Greek people, yet each and every one of them has a high philological value.

In order to encourage the study of these dialects, prizes have been offered at different times for the best collections of words, phrases, stories, ballads, etc., from among the people.

A few years ago a society called the Koraes was founded for the special purpose of encouraging research into the popular language. It published a periodical containing rich material for further study in this line. In Germany, Dr. Albert Thumb, of Freiburg, is devoting himself to this study, and Professor Krumbacher, of Munich, who publishes the Byzantinische Zeitschrift, and has written a Geschichte der Byzantinischen Litteratur, from the fact that he makes a specialty of Byzantine matters, is naturally highly interested in the study of the modern dialects.

Much has also been done in the same line by the Philologikos Syllogos of Constantinopol in encouraging the collecting of "Living Memories," *Ζῶντα Μνημεῖα* of the various dialects, and publishing the same in its periodical the *Ἑλληνικὸς Φιλολογικὸς Σύλλογος τῆς Κωνσταντινουπόλεως*.

But the man who is now doing most for the proper study of these beautiful and attractive dialects is Dr. Georgios Hatzidakis, a Kretan. He is professor of comparative philology in the university. After having distinguished himself as a student in the Greek University, he went to Germany and studied comparative philology there. In his numerous writings, some of which are in Greek and others in German, he teaches that the only language that can possibly remain the universal language of Greece is the Katharevousa, but that the Katharevousa should be enriched not only from the ancient language, but also from the modern dialects. He strongly urges the serious study of the dialects in order that their true value may become known, and that they may be properly used for the enriching of the literary language.

Hatzidakis is an admirer of Koraes, and was one of the charter members, if not the founder, of the Koraes Society mentioned above. Indeed it is mostly due to Koraes's influence and correct advice that the Katharevousa has won its way and gained its place to stay.

Koraes was born in Smyrna in 1748. From childhood up he hungered after letters. In his autobiography he tells of how his father, a poor man, encouraged his desire to study. If the young Koraes asked his father for a new garment, his father would hesitate, but whenever he asked for a new book, or for an instructor, his father immediately made provision. But nevertheless he was 34 years old before he could devote himself thoroughly to letters. Then he studied medicine at Montpellier. In 1788 he went to Paris and began to write. His opinions on the language question are scattered throughout his various writings, which a few years ago were published in a new and complete edition, *Τὰ Ἅπαντα τοῦ Κοραῆ*.

ATTIC GRAMMAR.

It has already been stated that the practice still is to teach all the grammatical knowledge given to the students through the medium of the Attic grammar. This does not imply that the teachers expect to hear the pupils use in conversation or find them employing in writing all the forms peculiar to the Attic. They merely look on grammar as a science, and regard the Attic grammar as affording best material for the learning of that science.

There are scholars, however, who hold that the Katharevousa should be taught directly through its own grammar. And, since 1884, the teaching of modern Greek grammar has been on the programmes of the gymnasia. Grammars of this kind have been prepared, but not by the most competent men. Most men of the first rank seem to think that such an innovation is not yet needed. Pantazides, however, thinks

that such grammar should be the basis of the teaching in the schools, but is unable to say how far such grammars should depart from Atticism. Naturally, however, such grammars will gradually come to be universally approved.

MODERN LANGUAGES.

No provision whatsoever is made for the teaching of the other modern languages, French, German, English, etc., in the university. The importance of the classical languages and literatures seems to so overshadow the usefulness of the later languages as to make them entirely neglected as objects of university study. The position of language teacher in a gymnasion does not demand that the incumbent be a philologian, and as a matter of fact such positions are often filled by Europeans who merely teach how to read and converse in these languages. No provision is made for teaching them in a philological way. The remunerative allurements that would cause a young Greek to study the philology of some other language instead of his native Greek philology, are very weak.

The Greeks easily learn to converse in modern languages. Many men and women of moderate education speak French and Italian and German and English. This knowledge and facility is not due to any university training. Strangely enough the only modern languages, so far as I know, ever taught in the university were English and Turkish. English was taught by Professor Masson, who translated Winer's Greek Grammar of the New Testament into English, but he did not teach long. After the Turkish language had been taught for a few years it was found that no one studied it philologically; and those who wished to learn to merely speak and write it could succeed better by taking their instruction from an ordinary teacher of languages.

Table showing the number of students annually attending courses at the university from its opening down to the present time—1837–1897.

[For the years 1837-1887 this table is taken from Pantazides' Χρονικόν. Numerals marked with a (*) denote not the sum total of students enrolled, but only the new enrollments for that year.]

Year.	Theology.	Philosophy.	Law.	Medicine.	Pharmacy.	Total.
1837–38	8	18	22	4	.....	52
1838–39	*2	*15	*10	*10	.....	*43
1839–40	*1	*7	*6	*5	5	40
1840–41	16	47	54	32	10	159
1841–42	13	22	37	35	14	121
1842–43	15	30	42	43	15	145
1843–44	11	33	68	40	15	167
1844–45	5	52	41	74	23	195
1845–46	7	69	42	110	22	250
1846–47	7	61	58	126	18	270
1847–48	7	62	83	135	18	305
1848–49	10	53	91	175	18	347
1849–50	13	64	91	208	21	397
1850–51	7	62	86	224	18	397
1851–52	10	66	109	278	33	496
1852–53	18	91	147	304	33	593
1853–54	20	74	190	317	42	643
1854–55	25	79	208	281	43	636
1855–56	21	79	219	229	42	590
1856–57	28	71	263	192	20	583
1857–58	29	60	226	150	25	490
1858–59	24	72	296	152	12	529
1859–60	20	95	319	164	5	603
1860–61	27	110	386	161	12	696
1861–62	25	115	376	150	10	675
1862–63	35	148	532	147	16	905
1863–64	39	198	603	217	28	1,080
1864–65	33	182	632	215	36	1,098
1865–66	42	188	678	238	36	1,182
1866–67	43	189	650	254	40	1,176
1867–68	44	163	714	262	34	1,217
1868–69	29	151	673	216	36	1,205
1869–70	25	136	639	367	43	1,210
1870–71	26	120	622	423	53	1,244
1871–72	30	128	544	476	61	1,239
1872–73	32	145	521	508	69	1,275
1873–74	30	142	571	546	63	1,352

Table showing the number of students annually attending courses at the university from its opening down to the present time—1837–1897—Continued.

Year.	Theology.	Philosophy.	Law.	Medicine.	Pharmacy.	Total.
1874–75	32	180	588	587	74	1,461
1875–76	33	232	611	577	70	1,523
1876–77	32	282	678	606	52	1,650
1877–78	38	270	684	608	45	1,645
1878–79	52	296	790	656	35	1,828
1879–80	49	315	908	728	30	2,030
1880–81	48	294	1,001	720	33	2,096
1881–82	44	335	1,164	772	37	2,352
1882–83	47	379	1,328	809	38	2,601
1883–84	45	430	1,415	841	42	2,773
1884–85	47	443	1,400	780	46	2,716
1885–86	34	434	1,296	859	41	2,663
1886–87	40	508	1,524	843	62	2,978
1891–92	.....	.....	.....	.....	.....	3,878
1894–95	44	507	1,433	996	96	3,076

Table showing yearly number of graduates in the university, 1837–1897.

[For the years 1837–1887 this table is taken from Pantazides' Χρονικόν.]

Year.	Theology.	Philosophy.			Law.		Medicine.	Pharmacy.
		Doctors.	Τελειοδίδακτοι.	Teachers.	Doctors.	Τελειοδίδακτοι.		
1837–38	.....	.....	.....	.....	.....	.....	.....	.....
1838–39	.....	.....	.....	.....	.....	.....	.....	.....
1839–40	.....	.....	.....	.....	.....	.....	.....	.....
1840–41	.....	.....	.....	.....	.....	.....	.....	.....
1841–42	.....	.....	.....	.....	.....	.....	.....	.....
1842–43	.....	.....	.....	.....	.....	.....	1	.....
1843–44	.....	.....	.....	.....	.....	.....	.....	4
1844–45	.....	.....	1	.....	.....	.....	2	1
1845–46	.....	.....	.....	.....	1	.....	4	2
1846–47	.....	.....	.....	.....	.....	.....	3	7
1847–48	.....	.....	.....	.....	.....	.....	3	6
1848–49	.....	.....	.....	.....	3	.....	6	1
1849–50	.....	2	.....	.....	4	.....	9	6
1850–51	.....	.....	1	.....	4	2	8	7
1851–52	.....	1	.....	.....	.....	1	9	7
1852–53	.....	1	2	1	12	.....	13	6
1853–54	.....	.....	.....	5	7	3	20	11
1854–55	.....	2	.....	5	4	5	19	8
1855–56	.....	1	1	2	9	2	37	12
1856–57	1	2	2	6	11	1	44	14
1857–58	.....	2	2	3	17	1	44	5
1858–59	.....	1	1	.....	47	1	46	17
1859–60	.....	.....	.....	1	23	2	32	11
1860–61	.....	2	2	3	30	7	19	1
1861–62	.....	3	.....	1	42	7	27	7
1862–63	1	1	.....	4	39	2	12	9
1863–64	2	1	.....	2	31	7	31	.....
1864–65	.....	1	2	2	35	9	26	2
1865–66	1	7	8	2	46	19	27	7
1866–67	3	13	3	2	46	18	35	14
1867–68	1	11	4	3	62	19	35	5
1868–69	1	5	4	2	38	41	49	6
1869–70	.....	4	6	3	36	38	38	8
1870–71	3	3	6	1	45	22	55	11
1871–72	2	4	4	1	30	41	58	14
1872–73	2	7	3	3	29	30	94	16
1873–74	1	4	1	.....	45	27	50	11
1874–75	1	2	3	.....	44	26	82	11
1875–76	2	5	1	1	54	29	100	13
1876–77	4	6	5	1	81	26	97	13
1877–78	2	10	1	2	50	18	105	21
1878–79	2	3	3	.....	74	29	105	1
1879–80	5	11	1	2	94	19	114	12
1880–81	4	13	7	3	94	24	128	12
1881–82	1	18	6	1	55	30	115	9
1882–83	7	27	7	10	122	34	129	3
1883–84	8	17	5	9	112	47	154	6
1884–85	4	29	9	24	118	43	135	14
1885–86	10	21	3	13	81	40	167	11
1886–87	4	19	10	10	38	35	49	2
1894–95	10	49	14	.....	178	55	176	28

Present Teaching Faculty in the National University.

THEOLOGY.

Professors.—Anastasios Diomedes Kyriakos, church history and symbolics; Zekos Roses, dogmatic theology and Christian morals; Prokopios Oekonomides, archimandrite, patrology, history of dogma, and apologetics; Emmanuel Zolotas, New Testament and encyclopedia of theology.

Docents.—Spyridon P. Soungras, apologetics; Ignatios Moschakes, church oratory and homiletics; Ioannes E. Mesoloras, symbolics and liturgy; Georgios Derbos, church history.

LAW.

Professors.—Nikolaos Damaskenos, commercial law; Konstantinos N. Kostes, penal law; Stephanos Streit, international, public, and private law; Demetrios Theophanopoulos, Roman law; Zenophon I. Psaras, civil process (*τῆς Πολιτικῆς Δικονομίας*); Alkibiades Krassas, Roman law; Neokles Kazazes, political economy; Ioannes Papaloukas Evtaxias, civil law; Georgios I. Angelopoulos; Nikolaos Demaras, history of Roman law; Konstantinos E. Polygenes, Roman and Byzantine law.

Docents.—Timoleon Adamopoulos, political economy; Anastasios Stoupes, constitutional law; Charilaos Angelakes; Damianos Borres, penal law; Nikolaos Moschobakes, civil law; Georgios Lazarimos, commercial law; Antonios Ronteres, international law; Michael Libadas, political economy; Othon Phosteropoulos, French law; Ioannes Raises, commercial law; Soterios Krokides, commercial law; Spyridon Balbes, penal law; Konstantinos Ralles, Roman law; Demetrios Zalouchos, natural law; Spyridon N. Damaskenos, commercial law; Georgios Dyobouniotes, commercial law; Konstantinos I. Kyriakos, international law; Timoleon Heiopoulos, penal law; Elias Liakopoulos, Roman law; G. Kallisperes, history of Roman law and institutions of Roman law; A. Typaldos Basins, political economy; D. E. Oekonomides, Roman law; Elias D. Zengeles, publicistics; G. Streit, private international law; N. Pharantatos, Roman law.

MEDICINE.

Professors.—Andreas Anagnostakes, surgical pathology; Konstantinos Bousakes, physiology, director of the eye institute; Demetrios G. Orphanides, special pathology and therapeutics; Panagiotes G. Kyriakos, encyclopedia and methodology of medicine and general pathology; Konstantinos P. Deligiannes, medicinal clinics and pathology; Pavlos Ioannou, science of operations, topographical anatomy, ligatures; Michael Chatzimichales, special nosology, subdirector of the city clinic; Spyridon Manginas, surgical pathology and surgical clinics; Georgios Karametsas, medicinal clinics; Ioannes Zochios, experimental psychology and comparative anatomy; Anastasios Zinnes, clinics and pathology for diseases of children, director of the infant asylum; Demetrios Konsolas, midwifery, director of the lying-in hospital; Demetrios Chassiotes, pathological anatomy and histology, director of the laboratory for pathological anatomy; Rhegas I. Nikolaides, anatomy, director of the anatomical seminar; Michael Katsaras, neurology and diseases of the mind; Georgios Baphas, medicinal jurisprudence and toxicology; Nikolaos Makkas, pharmacology; Joulios Galbanes, surgical clinics.

Docents.—Nikolaos Dellaportas, ophthalmology; Georgios Tzannetopoulos, gynaecology; Perikles P. Patrikios, external pathology and surgery; Timoleon Loues, surgery, operations, and ligatures; Charilaos Olympios, anatomy; Nikolaos Lampadarios, special nosology; Konstantinos Digenes, midwifery; Basileios Protopoulos, syphilis; Spyridon Rosolymos, diseases of the skin and syphilis; Spyridon Spathes, surgical pathology; Elias Philippakopoulos, ophthalmology; Antonios Kallibokas, medicinal jurisprudence; Spyridon E. Kontoleon, surgical pathology; Konstantinos P. Kyriazides, pathology of children; Alexandros Triantes, midwifery; Alexandros

Alexandrogiannos, midwifery; Epameinondas Stathakopoulos, special nosology; Konstantinos Matsales, topographical anatomy and science of operations; Antonios Kindynes, midwifery; Evangelos D. Kalliontzes, surgical pathology and therapeutics; Theodoros Panopoulos, ophthalmology; Orestes Dalesios, pharmacology; Sokrates Tsakonas, gynaecology; Demetrios Karekles, pharmaceutics; Georgios Trochanes, pathology of children; Bartholomaeos Gkizes, surgical pathology; Demetrios Balanos, midwifery; Lampros I. Charames, surgical pathology; Georgios Karyophyles, special nosology; Demetrios Blachos, surgical pathology; Miltiades S. Bellines, anatomy; G. Sklabounos, anatomy; F. Pavlines, special pathology; I. Karabias, pharmacology; Demetrios Menetriades, pathology; G. Phokas, special pathology; M. Sakorraphos, general pathology.

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Docents.—Michael Defner, comparative grammar of the ancient languages, assistant director of the library; Kyriakos Mylonas, archæology; Panagiotes Kabbadias, archæology, ephor of antiquities; Antonios Koutsobeles, history of philosophy; Themistokles Sophoules, archæology; Georgios Tserepes, Sanskrit grammar; Georgios Kremos, ancient Greek history; Antonios Giannares, Greek literature; Andreas Skias, Greek philology; Ioannes Polites, pharmaceutical chemistry; Telemachos Komnenos, chemistry; Sokrates A. Papabasileiou, geology and mineralogy; Demetrios Kalopothakes, history.

CHAPTER IX.

SUNDAY SCHOOLS.[1]

CONTENTS.—*Introductory note.—General sketch of Sunday schools to A. D. 1865.—Evangelical Lutheran Sunday schools.—Evangelical Sunday schools.—United Evangelical Church Sunday schools.—John Amos Comenius and the Moravian Brethren.—Presbyterian Sunday schools: Presbyterian Church in the United States of America; Presbyterian Church in the United States.—Reformed (Dutch) Church in America Sunday schools.—Reformed (German) Church in the United States Sunday schools.—Holland Christian Reformed Church in North America Sunday schools.—Congregational (Trinitarian) Sunday schools.—Baptist Sunday schools.—Protestant Episcopal Sunday schools.—Methodist Episcopal Sunday schools.—Methodist Episcopal, South, Sunday schools.—United Brethren in Christ Sunday schools.—Friends' First-day schools: Orthodox; Hicksite.—Universalist Sunday schools.—Consolidated statement of Sunday schools, by given denominations, included in the international reports.—International Sunday School Convention.—Home department.—Hebrew Sabbath schools.—Latter-Day Saints Sunday schools.—Roman Catholic Sunday schools.—Unitarian Sunday schools.—Consolidation of all reports of attendance obtained.—Libraries.—Summary.—Note on statistics.*

[NOTE.—Statistics for the Sunday schools of the United States are not entirely satisfactory in respect to accuracy, for reasons that will appear in this chapter.

At the present time the International Sunday School Convention, meeting once in three years, is the most prominent agency for securing the statistics of enrollment in Sunday schools. The last session was in June, 1896. In its reports, no date is given for the statistics, but they are presumably for the year ending with the meeting. The reports of the convention are mainly limited to "evangelical Sunday schools," leaving the enrollment of several bodies sustaining Sunday schools to be sought in some other way. Many denominations publish the enrollment of their Sunday schools. Some use, apparently, the calendar year; others use a year ending with some month other than December. A part of the denominational year books for 1896 are much more definite regarding Sunday schools than the corresponding books for 1897. For the reasons above mentioned no better or later results are likely to be available before 1899.]

INTRODUCTORY NOTE.

There is a risk in calling anything the first of its kind. Some one is very apt to be reminded of another still older. No man can tell when the first Sunday school was taught; but following back the inquiry along the lines of Christian teaching into those of Judaism, one will find himself transported to a remote past, with a possible

[1] By James H. Blodgett, A. M.

Sunday, or Sabbath, school still beyond him. It flatters our vanity to claim the Sunday school as a token of hardly more than a century's progress, but that view requires us to ignore the works of earlier centuries and of other people.

It has been deemed best in this report to present Sunday schools mainly as seen by others, especially by those prominent in the work, and to restrict comments of the compiler within narrow limits. This plan does not produce a statement of conditions as systematically arranged as could otherwise be prepared, but it enables a comparison to be made of many authorities whose value each reader can weigh in the light of his own knowledge and convictions.

While the principal interest centers upon present schools, the history of the use of a special day for weekly religious instruction of youth has such value as to suggest a chronological order. This would require a notice, first, of Jewish schools, then of Christian—that is, of Catholic, Moravian, Lutheran, Reformed, and the later ones that have grown out of them—with notice of such current movements as have marked peculiarities. In giving prominence to reports of the International Sunday School Convention the chronological order indicated above is disturbed.

There is first a general sketch of Sunday schools, then a Lutheran view of Sunday schools, followed by a statement of the principles of education laid down by the great Moravian teacher, Comenius, as most completely expressing the convictions of reformers and the denominations that trace their history to the reformers, after which follow certain other groups whose returns are available, with any special peculiarities they may present, summed up in the international report. After the international report are noticed the Catholic, the Hebrew, the Unitarian, and the Latter-Day Saints schools, followed by a summary and a note explaining the imperfection of returns.

The Lutheran extracts touch upon early history and fill out some omissions in the opening statement which could not well be put in their chronological order without sacrificing the unity of a citation or duplicating matter. The Protestant Episcopalian makes great use of church catechisms. The International Sunday School Conventions embrace denominations with a general similarity of practice in their Sunday schools. The Friend and the Unitarian reach over the lines of Biblical texts to a range of topics limited only by human welfare, as most fully shown in the statement of Friends Schools in England, by John William Graham. The work of the present Hebrew continues that of his devout ancestor. The earnestness of Roman Catholic instruction is suggestive. The fullness with which the Latter-Day Saints, youngest among great religious bodies, have adopted systematic methods of instruction will indicate a source of their power to those who advocate other views.

In attempting to treat of the Sunday schools of the United States

with impartial fairness one can not include or exclude schools, sects, or denominations upon the basis of his sympathy with their forms of doctrine. All here included, however, accept at least the Old Testament Scriptures, all recognize the same God, and all use the same day as a day of special religious instruction.

GENERAL SKETCH OF SUNDAY SCHOOLS.

The Sunday school is prominent among popular educational agencies. So popular, indeed, has it become that we are in constant danger of forgetting the work for which it is presumed to exist in the prominence given it as an organization, exalting the machinery above the product, the means above the end.

The following quotation expresses a general conviction as to religious instruction:

> Mankind has not lived for so many centuries on this little planet without arriving at some safe conclusions. One certainly is that the great forces of human character can not be properly guided without training and intellectual equipment.
>
> This great principle, if granted, includes certain lesser truths, one of which is that moral and religious education are just as needful as intellectual training. Some of us would say that ethical and spiritual development are of first importance.[1]

Friedrich Froebel, the apostle of the Kindergarten (1782–1852), said:

> Every human being, as a being proceeding from God, existing through God, and living in God, should raise himself to the Christian religion—the religion of Jesus. Therefore the school should first of all teach the religion of Christ; therefore it should first of all, and above all, give instruction in the Christian religion; everywhere, and in all zones, the school should instruct for and in this religion.[2]

The following extract from the laws of Delaware seems unique for this country, in making an appropriation from public funds for Sunday schools:[3]

> Chapter XLI.—Of Sabbath schools.
>
> SECTION 1. The levy court of each county is required to pay annually, by orders on the county treasurer, to the teachers of each Sabbath school kept therein for three months or more in the year fifty cents for each white scholar, upon the report of such teachers, or of the superintendent, verified by the certificate of two credible citizens, stating that the said school has been regularly held for more than three months in the year and the average number of scholars in such school: *Provided*, That the sum annually paid in any county under this chapter shall not exceed five hundred dollars.
>
> SEC. 2. That in Sussex County the teachers, or persons having charge of such school, shall return to the levy court of said county in March, annually, the man-

[1] Unitarian Sunday School Society. Annual report of the board of directors for 1896.

[2] International Education Series: The Education of Man, by Friedrich Froebel. Translated and annotated by W. N. Hailman, A. M. New York: D. Appleton & Co. 1888, p. 151.

[3] Revised code of 1852 as amended 1893.

ner in which such appropriation has been applied and the vouchers therefor; and in default of such return, the levy court shall make no appropriation to said school for the next year.

The law as originally passed, February 3, 1821, allowed 20 cents a scholar, with a maximum of $200 a county; afterwards amended to 40 cents a scholar and $400 a county, and again to its present form.

The spirit of the lawmakers may be inferred from the preamble of a law passed January 29, 1817, to incorporate a Sunday school:

Whereas the establishment of Sunday schools, especially in the vicinity of extensive manufactories, is calculated not only to promote the instruction of the youth in those useful establishments in the first rudiments of learning, but to conduce greatly to their good and orderly behavior by preventing them from spending the Sabbath in idleness and contracting habits of vice and immorality:

SECTION 1. *Be it enacted, etc.*, That * * * shall be, and they are hereby, constituted a body politic and corporate by the name of the trustees of the Brandywine Manufacturers' Sunday School. * * *

In the reports for 1866 and 1869 of Oramel Hosford, superintendent of public instruction of the State of Michigan, space is given for reports of the superintendent of the American Sunday School Union in that State, who, in the report for 1869, claims that—

The Sunday school does step in and quicken the sense of responsibility for education in these neglected communities. It works side by side with the common school in building up the character and intelligence of the people.

In his report as superintendent of common schools of the Commonwealth of Pennsylvania for the year ending June 3, 1867, J. P. Wickersham welcomes the work of Sabbath schools as advantageous to the cause of public schools and pleads for reciprocal aid among those interested in the two forms of education.[1]

The fundamental purpose, ethical or moral and religious education, needs emphasis that we may the better estimate the relation of the agencies used. Any agency becomes relatively insignificant if the work it would do is accomplished through other means. Even the day of the Sunday school becomes subordinate, in the view of Henry Clay Trumbull, who, after enumerating several items that constitute a Sunday school, says:

All of these particulars being found, a gathering is substantially a Sabbath school, on whatever day of the week it assembles or by whatever name it be called.[2]

Dr. Trumbull, in broadening his definition to cover all days, gives opportunity to recognize some sympathy of purpose in all people who meet for the study of the Word of God as they accept it. This would bring to view that not only those who accept the Hebrew or the Christian Scriptures—the Jews, the Christians, and the Mohammedans—have had such schools, but all religionists who are of a civilization sufficiently advanced to have any sacred books.

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[1] Page xli.

[2] Yale Lectures on the Sunday School, p. 4.

The religious schools of Mohammedans, of Hindus, and of Parsees have to us but a remote interest in community of ulterior purpose. For all but exceptional cases we may accept for the United States the definition that "a Sunday school is an assembly of persons on the Lord's Day for the study of the Bible, moral and religious instruction, and the worship of the true God."[1]

This will involve a study of the schools of the Jews using the Old Testament Scriptures and of the schools of the Christians using the Scriptures of the Old and New Testaments.

Sunday schools in some form are as old as the observance of the Sabbath by families, which formed the unit of primitive instruction. Hebrew authors sometimes date back to the prophet Samuel, and they often state that to each synagogue was attached a school in the later days of the nation.[2] The intense zeal of the Jew for education in all the vicissitudes of that people was set forth by J. J. Noah in the Report of the Commissioner of Education for 1870.

The Roman Catholic Church holds that religious instruction is an essential part of all education. Insisting upon such instruction daily, the Sunday school has not been so prominent in that church as a dependence upon it for religious teaching would make it. Within recent years the number of children who attend public schools and the conditions regarding religious instruction in these schools have apparently prompted greater attention to Sunday schools among Roman Catholics. They now have a great number of Sunday schools, occupying about an hour of each Sabbath in catechetical instruction and in Bible history. Some churches have also Saturday morning classes for pupils of the public schools.

Some Protestants hold views similar to those of the Roman Catholics as to need of religion in every stage of education. A few are unwilling to accept any instruction separated from religious influences, and so there are some permanent parochial schools and a great number of secondary and superior schools under the religious motives. There are some who utilize the public schools for ordinary instruction and endeavor by brief terms of parochial schools in the vacations of public schools to secure religious foundations in the minds of the children.[3] Those who have temporary parochial schools generally have Sunday schools also. To the great multitude of Protestants and of those who have no very earnest adherence to any profession the Sunday school has now become the principal agency for religious instruc-

[1] Schaff-Herzog Encyclopedia of Religious Knowledge.

[2] Henry Clay Trumbull, in Yale Lectures on the Sunday School, gives many corroborative citations, including traditions extending to Moses and even to Methuselah. (See also the article "Schools," McClintock & Strong's Cyclopedia of Biblical, Theological, and Ecclesiastical Literature.)

[3] Parochial schools form the subject of pp. 1617–1671, Report of the Commissioner of Education, 1894–95.

tion. The large Sunday schools with convenient equipment are divided into at least three general departments: Infant or primary, intermediate, adult or advanced. Within late years another has been introduced, known as the home department. In this department are enrolled persons who can not attend the school, but who study the lessons and read the prescribed passages at home, reporting in some form to the school officers. Their names sometimes swell the rolls, somewhat as the names of students in university extension courses might swell the catalogue of the parent institution if so used.

There is a vast amount of material ready for the Sunday school in the way of helps, lesson leaves, weekly comments on the lessons in religious and secular papers. The Sunday school as established in this country was intended as a help to home training. In modern life, where so many families separate for their various occupations before breakfast and rarely come together at any meal, home education has lost ground. The advocates of the Sunday school may seriously inquire whether it has grown to the fulfillment of the work thus left for it to do or whether it is possible by any external agency to supply the place of home influence.

The Jewish habits of education descended into Christian practice and religious instruction is everywhere commensurate with the state of the church. The early reformers, such as the Albigenses in the eleventh century, the Waldenses in the twelfth, John Wycliff in the fourteenth (1324(?)–1384), John Huss (1369–1415) in the fourteenth and early in the fifteenth, and the Bohemian or Moravian Brethren in the latter part of the fifteenth century, all laid special emphasis on instruction in the Scriptures. The Catholic Church kept up a degree of instruction in periods of decline, the Waldensian movement originating at Lyons, where there was already a famous cathedral school. The reformer Martin Luther (1483–1546) laid down a scheme for complete education by the State in which religious instruction was fundamental. Of the relation of Luther to Sunday schools more will appear in treating of Lutheran schools. Apparently quickened by the activity of the reformers, the mother church produced great agencies for education. Ignatius Loyola (1491–1556) organized the Jesuits and inspired a zeal for religious instruction, and Cardinal Carlo Borromeo (1538–1584) is by some called the founder of Sunday schools.[1]

A little later, on the reform side were Comenius (1592–1670), Philip Jacob Spener (1635–1705), and Hermann Francke (1663–1727). On the Catholic side, in the same period, was the organization by Jean Baptiste de la Salle (1654–1719) of the Brothers of Christian Schools (1684), an order devoted to teaching and founding their work on a religious basis.

The contemporaries of Luther, Ulric Zwingli (1484–1531) and John

[1] American Encyclopedia.

Calvin (1509–1564) in Switzerland, John Knox (1505–1572) in Scotland, were, like him, earnest for religious education. The influence of the Swiss reformers especially was felt in France and the Low Countries. The Presbyterians and the Baptists in the United States have a special inheritance from the Huguenots, the Scotch Presbyterians, and the Holland reformed bodies, and the present Congregationalists were influenced by the contact of their fathers with Holland.

As will be seen later, the Lutherans claim a continuous history of nearly four centuries for their Sunday schools; the Roman Catholics would hardly acknowledge any complete cessation of their Sunday schools, at least from the days of Borromeo. It is altogether probable that Sunday schools had not wholly died out in England, but they were of limited influence when, in 1780, Robert Raikes gathered poor children in Gloucester, England, to teach them to read, utilizing the Sabbath as the day when they were not at work, and so far having the Bible in view that Bible societies grew out of his labors. Some writers are content to call Robert Raikes the founder of the modern Sunday school, which, however, needs a further limitation, making it the modern Sunday school as initiated in England.

The Sunday schools of Germany require such characterization as will show their historical relations and enable anyone who wishes to follow the subject further to do so intelligently. It is said[1] that the Church Reformation was destructive as well as constructive, and that some of the schools existing in cities and villages under the auspices of the Catholic Church were displaced. It is to be remembered that the German Empire of to-day, and yet more the Germany of earlier years, is not a unit to which any statement will apply uniformly, but it comprises a multitude of States (26) as independent and as unlike in internal administration as Maine and Texas in our own country. Therefore the student of German history has constant need of caution to discriminate between what was true in some State of Germany and what was true for Germany as a whole. The general requirements in German States have been for attendance at school till 14 years of age. Certain causes for relaxation of the law were recognized, but the authorities did not relax the requirements for education; they simply modified the mode of acquirement and established supplementary or extension schools, nights and Sundays, which became a part of the system of the State, and within the last fifty years, in some communities, attendance has been compulsory to 18 years of age. The State, comprising a State church, carried the system of parallel secular and religious instruction existing in week-day schools into these supplementary schools. Their secular work is influenced by local needs. Courses in agriculture, commerce, industry, and forestry

[1] Kath. Schulzg. (Bayern) Nr. 3, etc., cited in Das gesamte Erziehungs- und Unterrichtswesen in den Ländern deutscher Zunge. Jahrgang I, Heft 5. Berlin, 1896.

are established according to the prevailing occupations of the patrons. Other phases of German Sunday schools will appear under the title Lutheran.[1]

In our own country the Sunday school has nominally been almost wholly for scriptural instruction and the school has usually been assigned but a brief portion of the day, in one session, not exceeding an hour and a half, on the presumption that other religious services would occupy the attention of the members. In recent years the Sunday school has tended to be the only service for the very young.

In this country voluntary teaching is nearly universal, but there are a few great Sunday schools that seem to demand the time of their superintendents to such a degree that a small number receive pay from the churches. A considerable proportion of the teachers in the Hebrew schools are paid. Complete statistics are not available as to the payment of teachers. At an early stage of the Raikes movement the cost of paid teachers began to look formidable, and voluntary help was utilized to a great extent. It is easy to understand that very excellent people of high qualifications, supported by other means, might be found to devote an hour or two on one day to scriptural teaching without hindrance to ordinary duty, but it can hardly be expected that an unqualified indorsement will be given to the following claims for voluntary service:

> Hireling teachers can scarcely be expected to possess either the zeal or the ability of those who now engage in the work from motives of pure benevolence. Gratuitous instruction was an astonishing improvement of the system.[2]

While selected volunteer teachers without compensation may be better than some paid teachers, the logic of the quotation would put all our schools and all religious and humanitarian enterprises in the hands of unpaid leaders, to the exclusion of paid teachers, superintendents, and pastors.

England was the scene of a disintegration of ecclesiastical unity, beginning even before Henry VIII claimed the supremacy of the Eng-

[1] The following extract, translated from a German report, exemplifies the conditions in Würtemberg: "The Sunday schools are a very old institution in Würtemberg. The first beginnings of Sunday schools may be traced to a church regulation of 1559. In the year 1695 these regulations concerning the schools are more definitely formulated, and in 1739 (the ninth synodical regulation) attendance upon Sunday schools appears as a general legal requirement. The following quotation makes this very plain: 'Young people must attend Sunday and holiday schools regularly until they marry, so that they will not forget easily what they have learned in the elementary schools; and for the additional reason that they will not pass the time on Sundays and holidays in sinful pursuits, but learn hymns, read the Bible, recite scriptural passages and the Psalms, as well as the principal parts of the catechism, write and read letters, and close the sessions with prayer and blessing.'" (Origin and development of industrial continuation schools in Würtemberg, 1889, p. 3, footnote.)

[2] Rev. John Angell James, as quoted under Sunday schools in McClintock & Strong's Cyclopedia of Biblical, Theological, and Ecclesiastical Literature.

lish Church (1534). Not only was there a breaking down of established usage in the independency that sprung up on all sides, but England drifted out of harmony with the religious habits on the Continent, in Scandinavia, or even in Scotland. By the latter part of the eighteenth century religious instruction was chaotic, and opportunity prompted the movement of Robert Raikes, closely paralleled, if not anticipated, by the work of John Wesley, who seems to have been deeply impressed by his intercourse with the Moravian, Peter Boehler, in London, in 1738, and with Count Nikolaus Ludwig von Zinzendorf, at Hernnhut, Saxony, in 1739.[1]

Had the English people but obeyed the rules laid down in their own state church they would have had no occasion to take up a recent date for the origin of their Sunday schools. Dr. Trumbull cites the fifty-ninth canon of 1602, never repealed, which requires that—

> Every person, vicar, or curate, upon every Sunday or holiday, before evening prayer, shall, for half an hour and more, examine and instruct the youth and ignorant persons of his parish in the Ten Commandments, the Articles of Belief, and in the Lord's Prayer, and shall diligently hear, instruct, and teach them the catechism set forth in the Book of Common Prayer.[2]

The same canon also provided—

> That parents or servants who persistently neglect to send their children or servants to be catechised are to be excommunicated.[3]

The Sunday school of the United States followed closely upon its revival in England, and numerous schools were established before the year 1800. In 1824 the organization of the American Sunday School Union at Philadelphia marks a great enlargement of the work. There had been a First-day, or Sunday School Society (1791), and a Philadelphia Sunday and Adult School Union (1817), as well as a New York Sunday School Union (1816). In 1827 the Sunday School Union of the Methodist Episcopal Church was organized in New York. Both the last named and the American Sunday School Union inaugurated a multitude of schools and published a great amount of Sunday school literature, including books for libraries. Other societies of less permanence or more limited scope have been formed since 1825. The American Sunday School Union published in 1826 a series of Uniform Limited Lessons, and later various Union question books. Similar aids had been published by different parties before 1865, when coincident with the close of the civil war a marked tendency developed toward greater uniformity of effort, accompanied by a great increase in the circulation of periodicals containing notes and other helps upon

[1] Many of these particulars as to early Sunday schools are stated by Henry Clay Trumbull, in Yale lectures on the Sunday school. For Wesley and Zinzendorf see pp. 106–108 of Yale lectures.

[2] Idem., p. 74.

[3] What is the law of the Church? By George Serrell, LL. D. Contemporary Review, November, 1896.

selected lessons, and culminating in the adoption upon a broad scale of the international system in 1873. That system claims as a great advantage that over all the world millions are studying the same lesson at the same time.

If we were to follow the broad definition of Sunday school adopted by H. Clay Trumbull, which takes religious instruction rather than the day as the essential element, we could make for the first half of this century a long list of educational authorities allied with its purpose. Their plans and their practice involved far more religious instruction in each week than the usual Sunday school gives. Among those who deemed the religious motive essential and made religious instruction a part of the daily programme were Eliphalet Nott (1773–1866), president of Union College; Thomas H. Gallaudet (1787–1851), a pioneer instructor of mutes; Mrs. Emma Hart Willard (1787–1870), teacher and author; William C. Woodbridge (1794–1845), editor of American Annals of Education; William A. Alcott (1798–1859), a writer of many books on education; George B. Emerson, especially influential in Massachusetts and New York; and the three brothers, Jacob Abbott (1803–1879), John S. C. Abbott (1805–1877), Gorham D. Abbot[1] (1807–1874). There might be added many more names, including those of early principals of normal schools.[2]

Some of the persons named and others wrote much of the philosophy of religion, principles of teaching and of mental growth, but certain books of the same period published in England were more specific as to details of Scripture lessons or gained more permanent hold than publications just mentioned.

In the publications of the Society for Promoting Christian Knowledge, organized in 1698, and in those of the Home and Colonial Infant School Society, as well as in those of the British and Foreign School Society, Scripture lessons are prominent.[3]

The committee of the Home and Colonial Society say:

> What they [the committee] are desirous of seeing in every infant school is—
> First. A simple course of religious instruction in which the great aim should be to teach the Scriptures, to teach the elementary truths of the Gospel, and to cultivate religious feelings and impressions.

[1] The variation in spelling the surname is intentional and follows the custom of the brothers.

[2] For example: Practical lectures on parental responsibility and the religious education. By S. R. Hall, Boston. Published by Peirce & Parker, No. 9, Cornhill, 1833. 12°, 176 pp. The preface is dated at the Seminary for Teachers, Andover. Samuel Read Hall (1795–1877) is credited in Appleton's Cyclopedia of American Biography with the organization of the first school in the United States for the training of teachers, at Concord, Vt., 1823. His Instructor's Manual or Lectures on Schoolkeeping (Boston, 1829) and Lectures on Education have not been accessible for this report.

[3] For example, see Model Lessons for Infant Schools, Teachers and Nursery Governesses, prepared for the Home and Colonial Infant School Society. By the author of Lessons on Objects, etc. [Dr. and Miss Mayo] London, 1838. 16°, 167 pp.

Secondly. A careful moral training on the standard of the Word of God; Christ set forth as our Saviour and our example; and the Holy Spirit earnestly sought as the only and all-sufficient help.

Thirdly. The cultivation of habits of accurate observation, correct description, and right judgment upon the things of nature and art.

Lastly, the improvement of the bodily organs and health by varied exercise.[1]

The System of Infant Schools, London, 1826, by William Wilson, A. M., vicar of Walthamstow, and a Manual of Instruction for Infant Schools, of which an edition was reprinted in the United States, emphasize moral education grounded on the principles of the Bible as their chief object.[2] "A teacher of an infant school should be a constant student of the Scriptures."

In this connection may be mentioned Hints for the Improvement of Early Education and Nursery Discipline,[3] issued anonymously and reprinted in many editions in England and several in the United States.

Merely mentioning Governess Life, a little book for family instruction in which religion is made the foundation for all instruction,[4] and recalling Samuel Wilderspin's Infant System, repeated in many editions after its publication in 1823, and containing elaborate lessons on Scriptural subjects, more definite attention may be directed to books explicitly recognizing Sunday school work. Dunn's Principles of Teaching bears the imprint of the Sunday School Union.[5] An edition with some modifications of title and matter was printed in the United States, with a preface by T. H. Gallaudet.[6]

In that portion especially devoted to moral and religious influence, Secretary Dunn says:

In all attempts to exercise moral influence over the young, the faithful inculcation of divine truth from the Bible is the first point to be regarded. * * *

I shall say, then, first of all, if it be possible, let every child have every day some portion of divine truth, however small, stored up in its memory and understanding. It is the reiteration, day after day, of truth upon the mind that makes the impression.

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[1] Practical Remarks on Infant Education for the use of Schools and Private Families. By the Rev. Dr. Mayo and Miss Mayo. 4th edition. Published by the Home and Colonial Society. London, 1849.

[2] A Manual of Instruction for Infant Schools, by William Wilson, B. D., vicar of Walthamstow. Adapted for infant schools in the United States by H. William Edwards. New York, 1830. 12°. pp. 222+6. See preface.

[3] Hints for the Improvement of Early Education and Nursery Discipline. London, J. Hatchard & Son, 1819. Sm. 8°. pp. 188. The second Salem (Mass.) edition bears the imprint of James R. Buffum, 1827.

[4] Governess Life: Its Trials, Duties, and Encouragements. By the author of Memorials of Two Sisters, Mothers and Governesses, etc. London, John W. Parker, West Strand, 1849. 16°. pp. 131.

[5] Principles of Teaching; or, The Normal School Manual, containing Practical Suggestions on the Government and Instruction of Children. By Henry Dunn, secretary to the British and Foreign School Society. 5th edition. London. Sunday School Union. 12°. pp. 274. No date. (Not later than 1837.)

[6] The School Teachers' Manual, prepared for publication in this country. With a preface by T. H. Gallaudet. Hartford, 1839. Sm. 8°. pp. 223.

Scant justice can be done the author's "Principles" in such brief quotation. He quotes Fellenberg as saying:

> Let this [the Old Testament] be the first history presented to the child, and let him be deeply imbued with the spirit of the Bible. * * * The best practical example for the educator is to be found in the Saviour of men; and in the result we should aim at no other object than the realization of that Kingdom of God to which he has directed mankind.[1]

Stow's Training System, in its earlier editions,[2] devoted over one-fourth its pages to Bible training, besides the recurrence to the Scriptures for illustrative material throughout the whole. Later editions include Bible training for Sabbath schools. In its amplified form this book is one of the most comprehensive manuals on education. There are chapters that deal with the distinction between teaching and training, the sympathy of numbers, and the minutest detail of model Bible training and secular training lessons, as well as social conditions, reformatory efforts, and the equipment of a school. It is hardly less a manual for a preacher than for a teacher, so fully does it treat of the principles by which one person is to influence another by personal and public effort.

Some of the books cited above have disappeared from current trade, and are only to be found in certain libraries and old book stores. Dunn's Principles of Teaching and Stow's Training System are still to be had through importing booksellers.

A great change took place in Sunday school work in the United States after the civil war. Although the use of any fixed date for that change might provoke dissent, it was so nearly coincident with the revolution in various social conditions brought about by the war that it hardly involves error, and it adds greatly to the convenience of memory, to consider the new era as beginning with the rearrangement of forces when peace was declared. Although the general history of Sunday schools to that time need not be further separately treated here, the story of denominational movements in later pages will involve statements relating to earlier times.

It will be noticed that the space given to individual denominations is not in proportion to the numerical strength of their Sunday schools. It occurs that prominent leaders in the great "International Lesson movement" were of the Methodists and the Baptists, the largest Protestant denominations of this country. Even had no others joined them, it would have resulted that the conduct of the great mass of Sunday schools under the auspices of the International Sunday School Conventions would be better understood by the public than that of

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[1] Principles of Teaching, p. 152, note. The School Teacher's Manual, p. 142, note.

[2] Moral Training and the Training System, established in the Glasgow Normal Seminary and its Model Schools. By David Stow, esq., honorary secretary to the Glasgow Educational Society, author of Moral Training, etc. Fifth edition. Blackie & Sons, Glasgow, Edinburgh, and London, 1841. 12°. 400 pp.

churches less prominently identified or not identified with the international movement. The literature of the International Lessons is only less widely diffused than the daily newspaper. Not only do denominational weekly journals regularly devote columns to the international lessons, but many daily papers set apart columns of their Saturday issues for the same purpose. It has therefore seemed fitting to give more space to denominations not so fully identified with the lessons popular at this time and to cite particularly the principles which some of them lay down as a basis of work, principles often essentially identical with those that might have been selected from the more generally known sources.

EVANGELICAL LUTHERAN SUNDAY SCHOOLS.

For the sake of unity, Lutheran religious instruction to the present time will be taken as a whole.

Martin Luther (1483–1546) published a German translation of the New Testament in 1522, and two catechisms, the large and the small, in 1529. He completed the translation of the Bible in 1532. Luther laid great stress upon hymns as an element of religious instruction. He insisted upon education with such an earnest effectiveness that the German systems of to-day rest largely upon the spirit inspired by Luther, and religious instruction was the very foundation of his plans for national education. Some writers give him credit for a great upbuilding of Sunday-school work. The Lutheran view of his work is shown in the succeeding quotations.

The Lutheran Church Review of October, 1896, is almost wholly devoted to the subject of Sunday schools. There are 24 distinct articles from 3 to 13 pages each.[1] These articles, partly reprints,

[1] The articles in addition to minor comments are: The Decadence of Sunday-School Music, Prof. Frederic Reddall; The Sunday School in History, Prof. William M. Wackernagel, D. D.; The History of the Sunday School, F. J. F. Schantz, D. D.; History of the Sunday School in the Ministerium of Pennsylvania, Rev. J. W. Early, A. M.; History of the Lutheran Sunday School in Philadelphia, Rev. C. M. Binder, A. M.; History of the Lutheran Sunday School in New York, George M. Boschen, esq.; The German Sunday Schools, Rev. G. C. Gardner, A. M.; The Place and Usefulness of the Sunday School in the Lutheran Church, Rev. J. A. W. Haas, A. M.; The Lutheran Sunday School, G. H. Trabert, D. D.; Prof. H. N. Fegley, A. M.; The Relation of the Sunday School to the Church, H. M. M. Richards, esq.; Typical Non-Lutheran Sunday Schools, Rev. Myron O. Rath, A. M.; The Swedish Sunday Schools, A. Rodell, D. D.; English Lutheran Sunday Schools in the West, Rev. J. F. Beates, A. M.; Lutheran Sunday Schools in the South, Rev. Z. W. Bedenbaugh; Sunday Schools in Germany, Prof. D. Werner; The Sunday School in Berlin, Rev. D. S. Schaff; The Sunday-School Work of the Evangelical Lutheran Church, Prof. L. Baugher, D. D.; The New General Council Sunday-School Hymn and Music Book, Rev. F. F. Buermeyer, A. M.; The Primary Sunday School, Mrs. J. L. Sibole; The Sunday-School Lesson, J. W. Horine, D. D.; The New General Council Sunday-School Apparatus, Theodore E. Schmauk; History and Critique of the American Sunday-School Lesson since the Civil War, Theodore E. Schmauk; Editorial Points of View. The Theory and Principles of the Sunday School.

form a compendium of the general history of Sunday schools and of the special Sunday-school work of Lutherans, explaining the need of religious instruction, the office of the Sunday school in aiding such instruction, the limitations of its conditions, with a great range of information upon questions as indicated by the titles. Unfortunately the edition was exhausted and the number is not readily accessible.

Regarding the Sunday school in history, Professor Wackernagel says:

> The Sunday school * * * is not an invention, a discovery of our modern times. Its origin is found in antiquity, its development in the subsequent ages.

The writer explains at some length the customs of the Hebrews, the early Christians, and the prereformation teachers, Waldenses, Wicklifites, Hussites, Bohemian Brethren, and others, who used catechisms containing the Decalogue, the Creed, and the Lord's Prayer. Of later religious instruction, he says:

> Methodical catechetical instruction in the manner practiced by the ancient church was revived in the creative period of the Lutheran Reformation. * * *
>
> The Lutheran princes, and especially the cities, in full recognition of the value and importance of Christian education, established catechetical services for children in the church on Sunday afternoon. These services were given in charge of catechetes, members of the ministerium, who possessed special gifts for this kind of church work. This catechetical instruction in interlocutory form was not limited to the one hour on Sunday. At Hamburg, e. g., the great preacher Balthazar Schuppius taught the catechism to his parishioners' children every morning before school. * * * One of the best "Sunday-school books" of all time is the Nuremberg "Kinderlehrbuechlein," of 1628, which for many years was extensively used in the old-fashioned Lutheran Sunday school, the Kinderlehre. The book contains in its first part the plain text of the topics of the five chief parts of the small catechism for the children in the primary department; in the second part, Luther's explanation of the same for the secondary department, and in the third part, in fifty-two lessons, an excellent exposition of Luther's explanation for the higher grades. One of the catechisms in use among us, the Hanover-Celle (Stohlmann), is founded on the Nuremberg manual.

The writer pays tribute to Philip Jacob Spener and his more widely known disciple and friend, August Hermann Francke, founder of the Halle Orphanage, as teachers of catechetics:

> Francke opened his "Ragged Sunday school" in his study in 1695, kept it open every day, and soon kept the ragged boys altogether until he laid the corner stone of the great orphanage in 1698. * * * The method he employed in imparting Christian knowledge was the interrogatory. Francke's was the leading spirit in the Christian circles of his time, and his educational methods were diligently followed. They were transplanted to our shores by H. M. Muhlenberg.
>
> The Lutheran "Sunday school" in Lutheran Europe, until the partial introduction of the Anglo-American Sunday school system thirty years ago, was, and is yet, the "Kinderlehre," conducted in church by the pastor alone, consisting in the declaratory explanation and interrogatory review of the Catechism and Biblical history (the study of which was generally introduced after the Thirty Years' War). But this one lesson on Sunday is not all the children get. Our church is a doctrinal, indoctrinating church; she is the "schoolmistress" among the churches.

Therefore, the "Kinderlehre" can not be the only occasion and opportunity for teaching and learning religious subjects. There is the daily instruction in the Catechism, Bible history, and the church hymns in the parochial school; the weekly catechetical recitations with the pastor in very many places; and above all, the thoroughgoing catechetical instruction before confirmation. * * *

The English Sunday school was introduced into America by the Methodist Bishop Asbury, in 1786.

Dr. Schantz shows that, while in schools of the early part of the century in this country instruction in reading, writing, and spelling was prominent, "the Sunday schools established chiefly for secular instruction soon felt the effect of the new system of religious teaching and gradually declined." In his personal recollections of Sunday schools he mentions aids furnished by various agencies, among which are "an excellent German Question Book, * * * a small work in German * * * for opening and closing the school, The Jugend Freund and the Youth's Penny Gazette," monthly, a Sunday school Union Hymn Book, Question Book of the American Sunday School Union, Barnes' Notes. In the Trinity Sunday school of Lancaster in 1853—

the order of service and the catechism were regularly used at the opening and closing of the school, and thus the Commandments, the Apostle's Creed, and the Lord's Prayer were repeated in each session. The pastor of the congregation met the teachers to aid them in preparing the lesson. All the features of the school had a decidedly churchly and Lutheran stamp. * * *

In 1857 the Sunday school [at Reading] held two sessions each Sunday.

Mr. Boschen states of the Lutheran Sunday schools in New York, that—

Nearly, if not all, of the schools have two sessions, one in the morning before service and one in the afternoon. * * *

It is very generally conceded that our church has utilized scarce a fraction of the wondrous power of her youth at command; and, with no effective oversight and a lack of systematic organization, the work of our Lutheran Sunday schools, as well as all other branches of our church work, has been left to the spasmodic activity of individual congregations. * * * We have no systematic, no effective, Sunday school organization. This want has been felt by a number of the more progressive workers, yet how to work harmoniously is the great question. Almost all of the schools use different lesson leaves; some none at all. Others use Biblical histories; yet others lay particular stress on the study of the catechism, and in many is added the study of the German language.

There are twenty-nine Lutheran Sunday schools in synodical connection in New York City, besides independent schools. Mr. Boschen makes this criticism upon the selection of teachers:

Another weakness has been our haste to take young people as soon as they were confirmed, on the plea of necessity, to make teachers of them. Without a proper appreciation of their high calling, with little or no ability to fit them for the post, they are given classes from a desire to assign some work to them where the least (?) harm can be done, and that place is the Sunday school! It is the place of all others where the foundation for future religious growth is laid and where the greatest care and conscientiousness should be exercised. After these young teach-

ers have been put in charge of a class, no effort is made to instruct them how to proceed. In answer to my question, "Do teachers have preparatory hours for the study of the lesson?" but eight schools answered affirmatively. It is therefore remarkable that the schools have apparently prospered so well.

The Rev. John A. W. Haas would reach the whole life without an age limit and—

the Bible study must be accompanied constantly by Luther's smaller catechism. * * * A Lutheran Sunday school should have the catechism as the principle of its whole grading, because the various stages of its knowledge are so bound up with the various stages of the Christian life in the Lutheran Church. There should also be a time set apart in every Lutheran Sunday school not only for memorizing but also for the explanation of the catechism.

In speaking of the Lutheran Sunday school Dr. Trabert defines—

the Kinderlehre of the Lutheran Church in Germany, instituted by * * * Rev. Philip Jacob Spener, about the year 1666. * * * This Kinderlehre was for old and young, but especially intended for the confirmed youth, and consisted in a brief opening service with singing, Scripture reading, and prayer, followed by examination in the catechism and the texts of Scripture illustrating the several parts.

The Sunday school goes further and is more comprehensive than the Kinderlehre. * * *

The system of instruction in the Lutheran Sunday school begins with the little ones and is continued through all the departments—infant, intermediate, and the so-called Bible class—having this sole aim: The honor of God in Jesus Christ our Lord. * * *

Persons not well grounded in the faith, who have no positive convictions with respect to the doctrines of the church, have no place as teachers in a Lutheran Sunday school, for it is of the greatest importance that the children be started right. * * *

Too much stress can not be laid on the service and hymns of the church in the Sunday school. * * *

It is of the greatest importance that the children early learn to appreciate the church's magnificent treasure in her matchless hymns and unrivaled service. The Sunday school must lead into the inner sanctuary by acquainting the children with and awakening a love for the full service of the sanctuary. To this end the matin and vesper service are peculiarly adapted.

The Augustana Synod is formed of Swedish churches. Rev. A. Rodell gives an explanation of Swedish religious education. He says:

The Sunday school was an institution with which the Swedish colonists were not at all familiar, as the children of the State Church of Sweden received their religious training in the public schools. * * * In the public schools of Sweden about an hour every day is devoted to the reading of the Bible and religious instruction. * * * The fundamental doctrines of Christianity and the tenets of the Lutheran Church are inculcated by trained teachers during the entire week, and, as a matter of course, the Sunday school can not be considered to be of the same importance there as it really is in this country, where no religious education is to be had in the public school.

As stated by Mr. Rodell, in 1886 there were 483 congregations and 17,406 scholars in Sunday schools; in 1896 there were 806 congregations and 42,847 scholars in this synod.

The description of English Lutheran Sunday schools in the West will serve well for other Sunday schools in the newer parts of the country. Rev. James F. Beates, writing from the State of Washington, says:

In the manner of conducting our Sunday schools there is little to distinguish them from those of the East. * * * We use the same publications and helps that are found in the Eastern schools, and in general follow the recommendations of the boards and authorities which are chiefly located in the East. And yet our schools are distinguished by their greater inability to carry out these regulations.

The chief difficulty we find is an insufficient force of effective officers and teachers. This universal want is the greater the farther west one goes. * * * .

A further hindrance to our work is the lack of male help. * * * The men ought to be as capable and willing to instruct the young as the women. The teaching force should be more evenly divided. The example of an active corps of men in the Sunday school is a powerful help in retaining the boys. * * *

Another evil peculiar to the West is the roving, shifting character of our people. * * * But few children in our frontier schools remain long enough to grow up from the infant to the Bible class. Hence there is not that rooting and grounding in the faith, that bond of attachment which the children in the older East enjoy.

The following table of the Sunday schools of the Evangelical Lutheran Church is derived from the Church Almanac, 1896, when not otherwise specified. It will be observed by those familiar with the Lutheran Church that some synods are not reported, and it will be seen by the table that certain others are only partially reported. The synods are not geographical in any strict sense, hence it is not practicable to make a table by States from the table by synods.

Evangelical Lutheran Church in America, Sunday schools as reported, 1895.

	Schools.	Teachers and officers.	Scholars.
General Council	1,417	19,202	175,899
Ministerium of Pennsylvania	389	8,286	76,855
Ministerium of New York	155	3,300	33,277
Pittsburg Synod	188	1,700	18,000
District Synod of Ohio	50	693	5,680
Augustana Synod	601	4,928	39,043
Chicago Synod	24	177	2,040
English Synod of the Northwest	10	118	1,004
Synodical Conference	188	215	18,000
Missouri, Ohio, and other States	160	.....	15,000
English Synod of Missouri	28	215	3,000
United Synod, South	299	2,778	22,354
Synod of North Carolina	52	660	5,362
Tennessee Synod	63	345	3,944
Synod of South Carolina	61	636	4,952
Synod of Virginia	68	654	4,300
Synod of Southwest Virginia	16	185	1,361
Mississippi Synod	9	27	314
Georgia Synod	15	176	1,292
Holston Synod (Tennessee)	15	95	800

Evangelical Lutheran Church in America, Sunday schools as reported, 1895—Cont'd.

	Schools.	Teachers and officers.	Scholars.
General Synod	1,482	22,319	177,113
Maryland	137	2,545	21,255
West Pennsylvania	141	2,743	23,327
Hartwick (New York)	39	596	4,152
East Ohio	64	973	7,652
Franckean (New York)	25	251	1,654
Allegheny (Pennsylvania)	138	1,913	14,633
East Pennsylvania	136	2,799	22,765
Miami (Ohio)	47	765	6,200
Wittenberg (Ohio)	69	1,030	8,106
Olive Branch (Indiana)	43	598	5,108
Northern Illinois	38	485	3,657
Central Pennsylvania	85	1,337	9,229
Iowa	26	315	1,980
Northern Indiana	78	661	4,530
Southern Illinois	20	162	1,109
Pittsburg (Second)	86	1,017	8,305
Central Illinois	28	363	2,710
Susquehanna (Pennsylvania)	73	1,428	11,084
Kansas	43	519	3,386
Nebraska	41	339	3,548
New York and New Jersey	53	898	7,444
Wartburg (German)	31	226	2,245
California	9	118	1,155
Rocky Mountain	8	59	446
Nebraska (German)	29	179	1,433
Independent synods	1,529	5,299	52,332
Joint Synod of Ohio *a*	607	----------	25,216
Buffalo Synod	1	24	180
Hauge's Norwegian Synod	141	----------	----------
Texas Synod	33	----------	1,590
German Iowa	532	700	18,199
Danish Lutheran Church in America	50	70	500
German Augsburg of Ohio and adjacent States	18	92	860
Danish Lutheran Church Association	52	313	1,993
Synod of Icelanders	15	60	900
Immanuel German	22	220	1,150
Finnish Suomi Synod	25	65	650
United Norwegian Church	----------	3,641	----------
Danish Evangelical Lutheran Church in America	33	114	1,094
The United States	4,915	49,813	445,698

a Evangelical Lutheran Almanac, 1896, published by the Publication Board of the Evangelical Lutheran Joint Synod of Ohio and other States.

It would take this report into a wider field than is now expedient to point out in each case the indications of the influences of special national or religious influences brought into this country from abroad, but the distribution of forms of religious faith or practice points to antecedents, sometimes clear by present perpetuation of a foreign tongue, sometimes, especially as to Scotch, French Huguenot, Holland or Dutch, and Irish influences, obscured by an absorption of language or dialect into the Anglo-Saxon.

The Lutherans are mainly of German or Scandinavian descent. The following table of communicants, as shown in the census of 1890, will show their geographical distribution and afford a rough guide for the distribution of their Sunday school membership, which, in the aggregate, approximates one-third the number of communicants:

Communicants, Lutheran, 1890.

States and Territories.	Communicants.	States and Territories.	Communicants.
North Atlantic Division:		North Central Division—continued:	
Maine	904	Indiana	41,832
New Hampshire	520	Illinois	116,807
Vermont	174	Michigan	62,897
Massachusetts	4,137	Wisconsin	160,919
Rhode Island	580	Minnesota	145,907
Connecticut	5,762	Iowa	63,725
New York	89,046	Missouri	27,090
New Jersey	12,878	North Dakota	18,260
Pennsylvania	219,725	South Dakota	23,314
South Atlantic Division:		Nebraska	27,297
Delaware	296	Kansas	16,262
Maryland	24,648	Western Division:	
District of Columbia	2,997	Montana	394
Virginia	12,220	Wyoming	721
West Virginia	4,176	Colorado	1,208
North Carolina	12,326	New Mexico	64
South Carolina	8,757	Utah	84
Georgia	1,932	Idaho	401
Florida	369	Washington	1,912
South Central Division:		Oregon	1,080
Kentucky	2,304	California	4,267
Tennessee	2,975		
Alabama	791	North Atlantic Division	333,736
Mississippi	533	South Atlantic Division	67,721
Louisiana	2,952	South Central Division	25,587
Texas	14,556	North Central Division	798,897
Arkansas	1,386	Western Division	10,131
North Central Division:			
Ohio	89,569	The United States	1,231,072

EVANGELICAL ASSOCIATION SUNDAY SCHOOLS.

The Evangelical Association formed in this country early in this century is of Lutheran antecedents. The following table shows its Sunday schools by conferences:[1]

Sunday schools, Evangelical Association, 1895.

Conferences.	Schools.	Officers and teachers.	Scholars.
Ohio	137	1,679	9,439
Texas	14	172	584
East Pennsylvania	116	1,668	7,437
Central Pennsylvania	15	110	670
Erie	47	711	4,133
New York	58	750	3,884
Platte River	13	126	529
Kansas	109	1,234	6,402
Nebraska	56	659	2,574
Michigan	129	1,609	8,193
Indiana	144	1,981	11,057
Des Moines	29	242	1,299
Pittsburg	23	140	839
Illinois	104	1,460	7,520
Iowa	89	938	3,905
Wisconsin	184	2,120	9,810
Minnesota	124	1,584	6,408
Atlantic	29	551	5,067
Dakota	89	730	2,829
California	81	197	606
Oregon	50	423	2,052
Total	1,640	19,082	95,256

The conferences are not strictly limited by State lines, and the schools of the Atlantic conference in particular, assigned in the State

[1] Christian Family Almanac, 1896, Cleveland, Ohio.

table to New York, are in different States, but there were no data for their complete selection. The distribution by States here made is therefore only of general value. There is a column in the Almanac for scholars who joined the church, in all 4,012. The following table has been arranged as well as practicable by States from the Almanac just cited:

Sunday schools, Evangelical Association, 1895.

State.	Schools.	Officers and teachers.	Scholars.
North Atlantic Division:			
New York	87	1,301	8,971
Pennsylvania	201	2,638	13,079
South Central Division:			
Texas	14	172	584
North Central Division:			
Ohio	137	1,679	9,439
Indiana	144	1,961	11,057
Illinois	104	1,460	7,520
Michigan	129	1,609	8,192
Wisconsin	184	2,120	9,810
Minnesota	124	1,584	6,408
Iowa	118	1,180	5,204
North Dakota and South Dakota	89	739	2,829
Kansas	109	1,234	6,402
Nebraska	69	785	3,103
Western Division:			
Oregon	50	423	2,052
California	81	197	606
North Atlantic Division	288	3,939	22,050
South Central Division	14	172	584
North Central Division	1,207	14,351	69,964
Western Division	61	620	2,658
The United States	1,640	19,082	95,256

UNITED EVANGELICAL CHURCH SUNDAY SCHOOLS.

The United Evangelical Church is the name taken by a body recently a part of the Evangelical Association. Their Sunday-school statistics are given in The Evangelical Almanac, 1896, Harrisburg, Pa., by conferences, which can be distributed by States with general correctness without a separate table. The editor of the Almanac states that the statistics are imperfect, owing to delay in returns, for which the Almanac could not wait.

Sunday schools, United Evangelical Church, 1895.

Conferences.	Schools.	Officers and teachers.	Scholars.
East Pennsylvania	152	2,674	21,700
Central Pennsylvania	235	2,942	20,572
Pittsburg (Pennsylvania)	141	1,488	10,418
Ohio	29	375	2,529
Illinois	.....	.....	5,465
Des Moines (Iowa)	82	808	4,606
Platte River (Nebraska)	34	325	.....
Oregon	16	146	818
California	1	.....	50
Total	690	8,758	66,158

A column of the Almanac, "Scholars converted," shows a total of 2,558.

GERMAN EVANGELICAL SYNODS OF NORTH AMERICA, SUNDAY SCHOOLS.

The organization known as the German Evangelical Synods of North America embraces about 1,000 congregations. In 1896 there were reported 185,203 communicants. There is a theological seminary at St. Louis, and there is a proseminary at Elmhurst, Ill., near Chicago. About one-half of the churches maintain week-day schools. A large part of the pastors are also teachers. Great attention is paid to the principles of teaching. The Paedagogische Zeitschrift, St. Louis, is a monthly devoted to the subject of pedagogy, especially as related to the conduct of schools in the German Evangelical Synods.

The Evangelischer Kalender, 1896, St. Louis, Mo., gives the number of Sunday school scholars as 82,628 and that of teachers as 8,694, not distributed by States.

JOHN AMOS COMENIUS AND THE MORAVIAN BRETHREN.

To understand the Moravians, we must look back at least three centuries. The Church of the United Brethren, Unitas Fratrum, or the Moravians, is the equivalent of the Bohemian Brethren who traced their denominational origin to John Huss (1373–1415). The last bishop of the Bohemian Brethren was John Amos Comenius (1592–1670), one of the most remarkable among educators. His outline of organization is followed in the best schools of to-day, and his Orbis Pictus was the prototype of the wonderful variety of children's illustrated books of later time. He left his impress upon schools of central Europe, but more distinctly upon those of Sweden and Denmark, being employed to draft plans and prepare books for the Swedish schools, partly by residents of Denmark. The recent translation of his principal treatise[1] is accompanied by a sketch of his life, which is utilized for the material here presented regarding his work.

The esteem in which educators hold the name of Comenius, the commanding influence he exercised upon the spirit of the Moravians and upon general education, and the orderly system of his plan make it specially fitting to cite his educational scheme as typical of views not limited to Moravians, but prevailing in various denominations.

In 1629, Wolfgang Ratke, supposed to exercise some influence on Comenius, had submitted a programme of education to a commission at Jena. The first of its items was "Everything is to be preceded by prayer," and the fifteenth, "Education should begin with religion." Comenius, anticipating more modern leaders in the philosophy and the art of education, prepared an outline of the Pansophic School about 1650, in which the work of a complete education was divided for seven classes. The general school was to spend the first hour of the morning in hymns, Bible reading, and prayers.

[1] The Great Didactic of John Amos Comenius, now for the first time Englished * * * by M. W. Keatinge, B. A. London, 1896. 8°. 468 pp.

In Class I, the Vestibular, with an inscription over the door, "Let no one enter who can not read," "The religious exercises consist of the heads of the catechism, together with a few short prayers and hymns." There is also prescribed "a course of moral philosophy suited to children."

In Class II, the Janual, with the inscription, "Let no one enter who is ignorant of mathematics," "The catechism is to be thoroughly learned."

Class III, the Atrial, was to have the inscription, "Let no one enter who can not speak."

In this class the boys should begin to read the Bible, but not as it stands. An abridged form, suited to their intelligence, should be given to them, and a portion of this must be expounded daily. * * * The history for this class is the famous deeds of the Biblical narrative.

Class IV, the Philosophical, is inscribed, "Let no one ignorant of history enter here."

A special collection of hymns and psalms must be arranged for this class; also an epitome of the New Testament, which should comprise a continuous life of Christ and His Apostles, compiled from the four Gospels. * * * The accessory study is Greek. * * * It is comparatively easy to learn to read the New Testament, and this is the chief utility of the study.

Over the door of Class V, the Logical, is the inscription, "Let no one enter who is ignorant of natural philosophy."

Religious instruction comprises hymns, psalms, and prayers. A Bible manual also, called the Gate of the Sanctuary, is to be placed in the pupil's hands. This is to contain the whole of Scripture history in the words of the Bible, but so digested that it may be read in one year.

Class VI, the Political, is inscribed, "Let no one enter who can not reason," "In Theology the whole Bible is to be read."

For the preceding classes only those injunctions have been selected which had a specifically religious character, but as all other studies are made to center in religious education, the whole plan for Class VII, the Theological, is given:

1. Inscription over the door: "Let no one enter who is irreligious."

2. The walls should be covered with mystic symbols, illustrating the wisdom hidden in the Scriptures. On one wall diagrams of Hebrew grammar may be traced.

3. The most devotional psalms and hymns of the church may be used, as well as prayers of a special nature taken from the Scriptures and from the works of the most inspired theologians and of the sainted martyrs. In addition, a compendium of Christian beliefs, duties, and hopes, written in the phraseology of the Bible, should be read daily.

4. The class book should be a work dealing with the last stage of wisdom on earth, that is to say, the communion of souls with God, and should consist of three parts:

(*a*) The ascent of the mind to God. In this a survey should be made of the universe, preserving the order of the Janua, and with regard to each fact should be pointed out what God tells us about it in the Scriptures, and how the Heaven and the earth and all that in them is tell the glory of God.

(*b*) The formal part should consist of a key to God's Book; that is to say, practical rules for reading the Scriptures with profit and for duly considering the works of God. Here a threefold commentary should be supplied: (1) From Scripture itself; (2) from reason; (3) from sense experience.

(*c*) The third part should be a repertory of theology, giving a detailed account of the mysteries of salvation.

5. In arithmetic the sacred and mystic numbers that occur in the Scriptures should be studied; also sacred architecture, as exemplified by Noah's Ark, the Tabernacle, and the Temple.

6. Universal history should be studied, and in particular the history of the church, for whose sake the world exists. * * *

7. In this class some training should be given in oratory. The future minister must learn how to address a congregation, and should be taught the laws of sacred oratory. The future politician must be taught how to appeal to the reason of his hearers.

8. The accessory study is Hebrew, which must be studied in such a way that before the end of the year the pupil shall be able to read and understand the original text of the Scriptures.

9. Recreation is to be allowed, but must not interfere with the theological studies.

10. Religious plays, dealing with the character of, say, Abraham or David, may be acted.[1]

In 1559 Calvin reorganized a Latin school at Geneva. It was insisted that—

Each lesson, no matter what the subject be, must commence with prayer.[2]

In the Great Didactic, Comenius says:

The holy Scriptures must be the Alpha and the Omega of Christian schools.[3]

Comenius divided the first twenty-four years of life into four periods or grades, to each of which he would assign a special school, thus:

I. For infancy	the school should be	the mother's knee.
II. For childhood		the vernacular school.
III. For boyhood		the Latin school or gymnasium.
IV. For youth		the university and travel.

A mother should exist in every house, a vernacular school in every hamlet and village, a gymnasium in every city, and a university in every kingdon or in every province. * * *

The mother school and the vernacular school embrace all the young of both sexes. The Latin school gives a more thorough education to those who aspire higher than the workshop; while the university trains up the teachers and the learned men of the future, that our churches, schools, and states may never lack suitable leaders.[4]

The plan outlined for education reads so much like the most thoughtful plans of modern days that one is tempted to quote beyond what is pertinent to the subject of the religious, and therefore important in the discussion of Sunday schools as now conducted. Passing by, however, all of the twenty-six paragraphs in the sketch of the mother

[1] The Great Didactic of Comenius, Englished by M. W. Keatinge, pp. 144-145.

[2] Idem, p. 129.

[3] Idem, p. 375.

[4] Idem, pp. 408-410.

school not explicitly religious, two must here suffice to show the preparation demanded at home before gathering in a formal school:

They will take their first lessons in music by learning easy hymns and psalms. This exercise should form part of their daily devotions.[1] * * *

Finally, by the time they are 6 years old boys should have made considerable progress in religion and piety; that is to say, they should have learned the heads of the catechism and the principles of Christianity, and should understand these and live up to them as far as their age permits.[2]

The vernacular school of Comenius would correspond in a general way to the public common schools of to-day in countries giving religious instruction in such schools.

The aim and object * * * should be to teach to all the young between the ages of 6 and 12 such things as will be of use to them throughout their whole lives. * * *

To learn by heart the greater part of the psalms and hymns that are used in the country. * * *

Besides the catechism, they should know the most important stories and verses in the Bible, and should be able to repeat them word by word. * * *

They should also learn the general history of the world, its creation, its fall, its redemption, and its preservation by God up to the present day.[3]

He would arrange these pupils in six classes, but it is unnecessary to follow the subdivisions, which suggest the grades below the high schools in this country.

The Moravians are numerically weak, but they exercise a relatively great moral power, especially as missionary laborers. A group of schools at Bethlehem, Pa., and one at Salem, N. C., represent their chief centers of concentrated effort in this country. The congregation at Bethlehem, the settlement of Count Zinzendorf, maintains a parochial school of high rank, established in 1742.

The Moravian Almanac and Year Book, London, 1896, gives the location, address of pastor, number of communicants and total membership, and number of scholars and teachers in the Sunday school for each church of the denomination, from which statements the following table is prepared:

Sunday schools, Moravian, 1895.

State.	Schools.	Teachers.	Scholars.
New York	6	125	896
New Jersey	4	41	415
Pennsylvania	16	454	3,736
Maryland	1	34	231
North Carolina	24	242	3,023
Ohio	6	94	691
Michigan	1	10	57
Indiana	1	19	211
Illinois	2	29	289
Wisconsin	14	145	1,153
Minnesota	9	70	514
North Dakota	3	39	165
Iowa	2	16	125
Missouri	3	11	107
Kansas	1	4	29
The United States	93	1,333	11,642

[1] The Great Didactic of Comenius, Englished by M. W. Keatinge, p. 413.
[2] Idem, p. 415. [3] Idem, p. 423.

PRESBYTERIAN SUNDAY SCHOOLS.

The history of Sunday schools of the Lutherans and of the Moravians, as well as that of schools of the Calvinistic Presbyterians, of Hebrews, and of Catholics, has a double interest in the light thrown upon conditions in continental Europe while the new continent was being peopled and in the work which they have done in this country.

The Presbyterians have preserved something of the zeal for religious instruction impressed by Calvin directly in Switzerland, indirectly upon the Huguenots of France, and reformers in Holland, and through John Knox upon the Scotch and Scotch-Irish ancestors of Presbyterians in the United States.

The Westminster Catechism is widely used as a book of instruction among Presbyterians.

Presbyterian Church of the United States of America.—The minutes of the General Assembly of the Presbyterian Church in the United States of America, sometimes called Northern Presbyterian, give the membership for each school; a table of statistics of Sabbath schools; officers and teachers; scholars; officers and teachers and scholars; schools held all the year; in average attendance; scholars in full membership; scholars received during the year into full membership; taught in Shorter Catechism; using Westminster helps; books in library, and amount of contributions under four heads.

The following table is prepared from the table first described, arranging the data by States:

Sunday schools, [Northern] Presbyterian Church in the United States of America, 1895.

States and Territories.	Schools.	Officers and teachers.	Scholars.
North Atlantic Division:			
Maine	2	27	245
New Hampshire	8	85	785
Vermont	3	45	422
Massachusetts	24	415	3,482
Rhode Island	5	75	742
Connecticut	7	172	1,528
New York	871	17,106	165,575
New Jersey	434	8,216	65,851
Pennsylvania	1,105	18,360	178,561
South Atlantic Division:			
Delaware	21	260	2,000
Maryland	118	2,070	16,682
District of Columbia	36	829	6,946
Virginia	35	203	2,746
West Virginia	35	200	4,931
North Carolina	135	888	8,305
South Carolina	98	717	5,389
Georgia	20	116	1,470
Florida	34	233	1,623
South Central Division:			
Kentucky	70	781	7,002
Tennessee	89	748	6,609
Louisiana	1	7	47
Texas	37	339	2,684
Arkansas	18	129	1,010
Oklahoma	23	200	1,624
Indian Territory	55	326	2,927

Sunday schools, [Northern] Presbyterian Church, etc.—Continued.

States and Territories.	Schools.	Officers and teachers.	Scholars.
North Central Division:			
Ohio	644	10,496	81,870
Indiana	319	4,637	37,765
Illinois	488	8,295	69,498
Michigan	304	4,383	34,243
Wisconsin	196	2,205	19,358
Minnesota	301	3,270	27,471
Iowa	431	5,281	41,058
Missouri	243	2,519	26,403
North Dakota	103	733	4,976
South Dakota	112	850	5,882
Nebraska	212	2,332	19,695
Kansas	299	3,615	26,717
Western Division:			
Montana	53	433	3,511
Wyoming	11	136	594
Colorado	106	1,243	11,384
New Mexico	55	181	2,808
Arizona	8	85	453
Utah	39	298	2,319
Nevada	7	70	534
Idaho	14	145	937
Washington	136	1,176	10,021
Oregon	121	1,047	8,241
California	220	2,790	22,508
North Atlantic Division	2,459	44,501	417,191
South Atlantic Division	532	5,516	50,072
South Central Division	293	2,566	21,966
North Central Division	3,652	48,616	394,937
Western Division	770	7,512	63,310
The United States	7,706	108,711	947,413

Presbyterian Church in the United States.—The minutes of the General Assembly of the Presbyterian Church in the United States, colloquially called the Southern Presbyterian Church, contain tables showing for each church the number of Sunday school teachers and the number of scholars, as also a table by synods and presbyteries, from which the following table, by States, is derived:

Sunday schools, [Southern] Presbyterian Church in the United States, 1895.

States and Territories.	Schools.	Teachers.	Scholars.
South Atlantic Division:			
Maryland	12	278	1,915
District of Columbia	1	26	236
Virginia	258	2,804	20,971
West Virginia	72	1,236	9,202
North Carolina	242	2,153	19,758
South Carolina	161	1,625	11,594
Georgia	145	1,443	10,014
Florida	65	330	2,407
South Central Division:			
Kentucky	123	1,445	10,004
Tennessee	134	1,488	11,818
Alabama	97	950	6,752
Mississippi	115	1,258	8,947
Louisiana	43	538	3,806
Texas	165	1,499	11,071
Arkansas	65	517	4,045
Indian Territory	13	48	494
North Central Division:			
Illinois	1	7	126
Missouri	118	1,001	8,515
South Atlantic Division	950	9,875	76,067
South Central Division	755	7,740	54,027
North Central Division	119	1,608	8,641
The United States	1,830	19,223	138,735

REFORMED CHURCH IN AMERICA, SUNDAY SCHOOLS.

The Reformed Church in America, colloquially called Dutch Reformed, is Calvinistic and related to the Presbyterian. There is a considerable membership of natives of Holland.

The committee of the General Synod of the Reformed Church in America upon Sunday schools and catechetical instruction[1] deems it essential that the Sunday schools shall be kept under the responsible control of the respective churches and not become distinct, independent organizations.

> In the mind of your committee, this question of consistorial supervision opens up the most important phase of the whole Sunday school problem, and touches a principle vital to the whole question of the relation of the Sunday school to the church. * * * Many pastors and consistories are seriously deprecating what seems to be a tendency in the trend of Sunday school development, through the influence of undenominational or interdenominational agencies—such as town, county, and State organizations, undenominational "helps"—to "institutionalize" the Sunday school. Whether or not the Sunday school is growing out of its normal position as an integral part of the church organism into the position of a rival to the church may fairly be questioned.

The committee also recognizes a demand for a return to the Bible pure and simple, without the lesson helps in general use. Of the churches with catechetical work, about two-thirds catechise in the Sunday school and one-third "catechise in catechetical class, the latter almost entirely in our Holland and German churches."

The Acts and Proceedings, 1896, just cited, show under each classis the number of Sunday schools and total enrollment, as well as number of catechumens for each church. The catechumens aggregate about 33,000, approaching one-third the enrollment in Sunday schools. There are no means of determining how far the catechumens are members of the Sunday schools, but they represent a specific effort at systematic religious instruction. The following table, by classes, is transcribed from the corresponding columns in the summary table of the book just mentioned.

[1] The Acts and Proceedings of the Nineteenth Regular Session of the General Synod of the Reformed Church in America, 1896.

Sunday schools, Reformed Church in America, 1896.

BY CLASSES.

Classis.	Schools.	Total enrollment.	Classis.	Schools.	Total enrollment.
Albany	22	2,878	New York	36	11,138
Bergen	22	5,466	Orange	38	3,277
South Bergen	18	4,979	Paramus	33	4,610
Dakota	19	1,075	Passaic	20	3,424
Grand River	31	5,173	Philadelphia	30	3,685
Greene	12	1,181	Pleasant Prairie	21	1,181
Holland	16	2,630	Poughkeepsie	18	1,538
Hudson	17	1,893	Raritan	26	2,783
Illinois	23	2,803	Rensselaer	18	1,804
Iowa	25	3,233	Rochester	17	2,244
Kingston	31	3,104	Saratoga	12	1,351
North Long Island	30	7,276	Schenectady	23	2,906
South Long Island	26	7,271	Schoharie	17	1,128
Michigan	12	1,838	Ulster	22	2,497
Monmouth	12	1,102	Westchester	16	2,239
Montgomery	32	4,127	Wisconsin	26	4,583
Newark	19	5,200			
New Brunswick	23	2,162	Total	763	113,779

It will be observed that the above table gives total enrollment and does not show scholars separately. The following table is prepared to show the distribution by States, the more readily to exhibit the geographical distribution of this denomination, which is strongest in New York and New Jersey:

Sunday schools, Reformed Church in America, 1895.

State.	Schools.	Total enrollment.
North Atlantic Division:		
New York	388	57,930
New Jersey	187	31,295
Pennsylvania	16	2,016
North Central Division:		
Ohio	2	190
Michigan	56	9,241
Indiana	5	384
Illinois	31	5,486
Iowa	40	4,088
Wisconsin	10	1,433
Minnesota	5	376
South Dakota	19	925
Nebraska	2	325
Kansas	2	140
North Atlantic Division	591	91,261
North Central Division	172	22,518
The United States	763	113,779

REFORMED CHURCH IN THE UNITED STATES—SUNDAY SCHOOLS.

The Reformed Church in the United States, colloquially called German Reformed, is, like the preceding, of Presbyterian character. The Acts and Proceedings of the General Synod, Twelfth Triennial Sessions, 1896, give the Sunday schools, officers and teachers, and scholars for every church, as well as a statistical summary, from which the following table, by synods, is transcribed:

Sunday schools, Reformed Church in the United States, 1895.

Synod.	Schools.	Officers and teachers.	Scholars.
Eastern Synod	617	8,469	70,504
Ohio Synod	212	2,923	21,302
Synod of Northwest	191	718	11,679
Synod of Pittsburg	121	1,228	10,556
Synod of Potomac	290	3,463	29,785
German Synod of East	55	1,084	10,892
Central Synod	105	1,579	12,096
Synod of Interior	62	634	3,614
Total	1,643	a 20,090	170,428

a Report incomplete.

The following table represents closely the distribution, by States, adjusted from the table by synods, which are not uniformly limited by State lines:

Sunday schools, Reformed Church in the United States, 1895.

States and Territories.	Schools.	Officers and teachers.	Scholars.
North Atlantic Division:			
Massachusetts	1	15	141
Connecticut	1	20	145
New York	17	311	3,129
New Jersey	5	72	418
Pennsylvania	919	11,943	103,757
South Atlantic Division:			
Maryland	67	1,138	7,794
District of Columbia	2	36	222
Virginia	23	254	1,517
West Virginia	7	84	603
North Carolina	33	250	2,448
South Central Division:			
Kentucky	9	95	806
Tennessee	3	13	133
North Central Division:			
Ohio	275	4,066	30,479
Indiana	67	748	6,704
Illinois	31	396	2,088
Michigan	9	50	306
Wisconsin	51	135	3,131
Minnesota	5	29	206
Iowa	34	187	1,789
Missouri	12	66	978
South Dakota	26	59	659
Nebraska	16	9	668
Kansas	18	166	1,170
Western Division:			
Colorado	2	10	75
Washington	3	----	97
Oregon	7	----	311
North Atlantic Division	943	12,861	107,585
South Atlantic Division	132	1,766	12,683
South Central Division	12	108	939
North Central Division	544	5,851	48,738
Western Division	12	10	483
The United States	1,643	a 20,096	170,428

a Returns for officers and teachers defective, some States and part of States not reporting.

HOLLAND CHRISTIAN REFORMED CHURCH IN NORTH AMERICA—SUNDAY SCHOOLS.

The Holland Christian Reformed Church in North America carries suggestions of its history in its name. Many of the present pastors and members of the church in this country are natives of Holland.

The organization is strongest in the southwest part of Michigan. There are catechetical classes reported from churches that do not report Sunday schools, as well as Sunday schools where catechetical classes are not reported. The Year Book[1] of the church, under each classis, gives numerous particulars regarding each church, from which the following table is prepared:

Sunday schools, Holland Christian Reformed Church in North America, 1895.

Classis.	Schools.	Scholars.	Catechumens.
Hudson	7	1,003	650
Hackensack	8	888	.....
Grand Rapids	15	2,085	2,147
Holland	12	2,055	2,421
Muskegon	11	1,586	1,582
Illinois	5	628	527
Iowa	14	1,030	1,373
Total	72	9,344	8,700

The following table presents the above figures arranged by States:

Sunday schools, Holland Christian Reformed Church in North America, 1895.

State.	Schools.	Scholars.	Catechumens.
New York	4	190	70
New Jersey	11	1,761	580
Ohio	4	360	385
Michigan	25	5,475	5,875
Illinois	3	490	275
Wisconsin	1	38	162
Iowa	14	1,030	1,373
Total	72	9,344	8,700

CONGREGATIONAL [TRINITARIAN] SUNDAY SCHOOLS.

Congregationalism represents an intense independency, each church controlling its own affairs, yet there is such a habit of association that something like a denominational standard prevails, approaching a Trinitarian Presbyterianism with those called Orthodox Congregationalist in Massachusetts, and those of kindred views elsewhere, and of a different type from those under the name Unitarian. The peculiar geographical distribution will be evident in the table. The Congregational Year Book, 1896, gives under each State each Sunday school by name, name of superintendent, members, average, and families; independent and missionary schools by States, by name and membership. It will be noticed that officers and teachers and scholars are not separated.

[1] Jaarboekje ten dienste Holl. Christelijke Gereformerde Kerk in Noord Amerika. Voor het Jaar 1896. Zestiende Jaargang. Grand Rapids, Mich.: J. B. Hulst, Boekhandelaar.

The following table is made from the tables of the Year Book:

Sunday schools, [Trinitarian] Congregational, 1895.

States and Territories.	Schools.	Members.	States and Territories.	Schools.	Members.
North Atlantic Division:			North Central Division—Continued.		
Maine	216	23,150	Illinois	326	58,383
New Hampshire	178	20,919	Michigan	302	38,888
Vermont	197	22,169	Wisconsin	200	24,476
Massachusetts	576	117,970	Minnesota	194	23,743
Rhode Island	35	8,649	Iowa	294	37,994
Connecticut	314	55,581	Missouri	74	10,807
New York	259	52,890	North Dakota	59	3,304
New Jersey	38	5,667	South Dakota	109	10,033
Pennsylvania	96	14,447	Nebraska	180	20,968
South Atlantic Division:			Kansas	167	16,499
Maryland	5	864	Western Division:		
District of Columbia	6	1,616	Montana	12	1,001
Virginia	2	125	Wyoming	13	1,008
West Virginia	2	250	Colorado	58	7,419
North Carolina	37	2,048	New Mexico	6	530
South Carolina	7	653	Arizona	4	200
Georgia	46	3,677	Utah	9	1,111
Florida	51	2,678	Nevada	1	110
South Central Division:			Idaho	6	748
Kentucky	15	1,405	Washington	98	8,945
Tennessee	38	3,287	Oregon	46	4,308
Alabama	64	3,204	California	186	20,067
Mississippi	7	878			
Louisiana	19	1,680	North Atlantic Division	1,904	321,242
Texas	14	1,794	South Atlantic Division	156	11,911
Arkansas	4	302	South Central Division	226	17,178
Oklahoma	75	4,433	North Central Division	2,180	226,718
Indian Territory	2	195	Western Division	439	45,531
North Central Division:					
Ohio	237	36,292	The United States	4,925	682,580
Indiana	48	5,398			

The Congregational Year Book, 1896, reports, in addition, certain Sunday schools, independent and missionary, as follows, when rearranged:

Sunday schools, independent (Congregational), 1895.

States and Territories.	Schools.	Members.	States and Territories.	Schools.	Members.
North Atlantic Division:			North Central Division—Continued.		
Maine	20	750	Wisconsin	74	2,867
New Hampshire	5	186	Minnesota	135	5,999
Vermont	11	357	Iowa	50	2,860
Massachusetts	38	3,022	Missouri	17	1,375
Rhode Island	2	59	North Dakota	56	1,780
Connecticut	15	939	South Dakota	50	1,302
New York	3	114	Nebraska	63	3,711
Pennsylvania	1	20	Kansas	43	1,926
South Atlantic Division:			Western Division:		
District of Columbia	3	340	Montana	19	474
Virginia	1	60	Wyoming	14	442
North Carolina	10	488	Colorado	42	1,458
Georgia	22	788	New Mexico	5	263
Florida	9	295	Utah	5	210
South Central Division:			Idaho	13	414
Kentucky	4	263	Washington	119	3,746
Tennessee	22	1,149	Oregon	121	4,679
Alabama	21	954	California	237	7,747
Mississippi	4	200			
Louisiana	4	250	North Atlantic Division	95	5,447
Texas	1	30	South Atlantic Division	45	1,971
Arkansas	3	119	South Central Division	73	3,439
Oklahoma	14	474	North Central Division	753	41,567
North Central Division:			Western Division	575	19,433
Ohio	39	2,043			
Indiana	12	775	The United States	1,541	71,857
Illinois	96	11,000			
Michigan	98	5,011			

BAPTIST SUNDAY SCHOOLS.

The great denomination of the Baptists, like the Congregational, is bound together more by the habit of association than by a recognized authority of any ecclesiastical body to control the individual church.

The American Baptist Year Book, 1896, gives by States the number of Sunday schools, of officers and teachers, and of pupils as follows:

Sunday schools, Baptist, 1895.

States and Territories.	Schools.	Officers and teachers.	Pupils.
North Atlantic Division:			
Maine	306	.....	18,853
New Hampshire	82	1,212	8,808
Vermont	90	1,017	8,126
Massachusetts	369	7,711	62,611
Rhode Island	85	1,092	13,411
Connecticut	141	2,140	18,405
New York	894	14,620	122,773
New Jersey	303	3,352	38,954
Pennsylvania	691	10,118	85,072
South Atlantic Division:			
Delaware	21	336	2,766
Maryland	84	1,296	12,171
District of Columbia	44	811	8,370
Virginia	1,415	11,070	100,844
West Virginia	313	2,122	17,884
North Carolina	1,705	9,582	100,609
South Carolina	1,398	7,754	76,253
Georgia	1,096	7,211	87,188
Florida	294	1,118	11,232
South Central Division:			
Kentucky	1,111	5,329	67,399
Tennessee	1,025	4,096	54,333
Alabama	1,251	4,311	50,522
Mississippi	1,096	3,721	36,784
Louisiana	731	2,537	36,169
Texas	1,477	5,511	63,098
Arkansas	500	1,784	25,192
Oklahoma	23	40	685
Indian Territory	68	331	3,053
North Central Division:			
Ohio	593	5,937	53,665
Indiana	509	5,209	38,149
Illinois	917	7,958	76,713
Michigan	460	5,955	45,728
Wisconsin	218	2,271	17,744
Minnesota	196	1,947	15,527
Iowa	381	3,991	28,033
Missouri	1,125	7,630	68,501
North Dakota	46	265	1,750
South Dakota	98	733	5,099
Nebraska	232	2,040	16,127
Kansas	331	3,262	22,380
Western Division:			
Montana	20	149	1,238
Colorado	71	756	6,863
New Mexico	8	46	455
Arizona	8	60	463
Utah	9	100	1,000
Nevada	1	12	106
Idaho	17	105	999
Washington	101	745	6,442
Oregon	69	654	5,687
California	102	1,621	13,481
North Atlantic Division	2,861	41,862	377,013
South Atlantic Division	6,970	41,300	417,317
South Central Division	7,343	27,609	337,835
North Central Division	5,106	47,288	389,416
Western Division	496	4,248	36,734
The United States	22,776	162,298	1,558,315

PROTESTANT EPISCOPAL SUNDAY SCHOOLS.

In Episcopal Sunday schools courses of catechetical instruction upon the Bible, the doctrines, and the history of the church are prominent. The editions of catechisms are numerous, being often prepared with reference to the needs of individual dioceses. At Milwaukee the following combination is published as constituting "a graded course for the Christian year:" Church teaching for the little ones of the Church, by Emma Anderson Tew; the young churchman's catechism; a practical question book on the Bible for juvenile scholars; a catechism on the Christian year and the collects, including the church catechism; systematic Bible study for advanced classes—the last four by Miss L. L. Robinson.

The publisher states that—

> The five catechisms named above comprise a graded series for Sunday school children in the order named. Each is arranged in chapters for every Sunday in the Christian year.

Another combination of manuals of instruction for the children of the church is called the Maryland series. It consists of: I. A new first catechism. II. The gospel story, a second catechism for the little ones. III. The church catechism, from the Book of Common Prayer. IV. The creed, being an exposition of the faith of the Church as set forth in the Apostles' Creed. A new fourth catechism, by the Right Rev. William Paret, D. D., bishop of Maryland.

Other series, as Bible lessons for the Christian year, and lessons of the uniform system of the joint diocesan committee, claim a very large circulation.

A special church service for children is a regular appointment in many parishes.

The number of Sunday schools is not available, but the numbers of teachers and scholars of the Protestant Episcopal Church in the United States of America are shown in the following table, in which dioceses and missions have been rearranged to facilitate determining attendance by States: [1]

Sunday schools, Protestant Episcopal, 1895.

States, dioceses, and missions (m).	Teachers.		Scholars.	
North Atlantic division:				
Maine		220		2,101
New Hampshire		235		1,530
Vermont		242		2,071
Massachusetts		2,670		21,784
Rhode Island		993		8,293
Connecticut		1,859		16,756
New York		9,671		92,719
Albany	1,255		11,210	
Central New York	1,037		8,164	
Long Island	2,171		19 937	
New York	3,850		41,358	
Western New York	1,358		12,050	
New Jersey		2,645		21,495
Newark	1,388		13,348	
New Jersey	1,257		11,147	
Pennsylvania		5,780		63,583
Central Pennsylvania	1,503		15,311	
Pennsylvania	3,515		40,434	
Pittsburg	762		7,837	

[1] The American Church Almanac and Year Book for 1896.

Sunday schools, Protestant Episcopal, 1895—Continued.

States, dioceses, and missions (m).	Teachers.		Scholars.	
South Atlantic Division:				
Delaware		920		2,727
Maryland *a*		2,343		20,129
Easton	279		2,040	
Maryland *a*	2,064		18,089	
Virginia		1,844		14,857
Southern Virginia	902		7,088	
Virginia	942		7,769	
West Virginia		411		3,436
North Carolina		963		7,322
Eastern Carolina	391		2,680	
Northern Carolina	572		4,642	
South Carolina		579		5,090
Georgia		484		4,455
Florida		326		3,100
Florida	182		1,881	
Southern Florida (m)	144		1,219	
South Central Division:				
Kentucky		532		4,964
Tennessee		378		2,926
Alabama		467		3,038
Mississippi		256		1,698
Louisiana		424		3,552
Texas		717		6,067
Northern Texas (m)	180		1,297	
Texas	302		2,964	
Western Texas (m)	235		1,806	
Arkansas		160		1,400
Oklahoma and Indian Territory (m)		33		323
North Central Division:				
Ohio		1,626		13,798
Ohio	987		8,469	
Southern Ohio	639		5,329	
Indiana		397		3,314
Illinois		1,525		12,477
Chicago	1,153		9,019	
Quincy	186		1,173	
Springfield	236		1,085	
Michigan		1,506		13,871
Michigan	1,170		10,134	
North Michigan (m)	120		1,200	
West Michigan	306		2,537	
Wisconsin		853		7,216
Fond du Lac	275		2,196	
Milwaukee	578		5,020	
Minnesota		925		7,077
Iowa		459		3,895
Missouri		732		6,678
Missouri	412		4,377	
West Missouri	320		2,301	
North Dakota (m)		66		609
South Dakota (m)		248		3,301
Nebraska		426		3,951
Nebraska	326		3,124	
The Platte (m)	100		827	
Kansas		266		2,410
Western Division:				
Montana (m)		154		1,421
Wyoming and Idaho (m)		135		2,021
Colorado		313		2,919
New Mexico (m)		46		393
Arizona (m)		21		152
Utah (m)		40		566
Nevada (m)		51		547
Washington		340		2,661
Olympia (m)	274		2,084	
Spokane	66		577	
Oregon		221		1,735
California		708		7,399
California	626		6,188	
Northern California (m)	142		1,211	
North Atlantic Division		24,321		231,331
South Atlantic Division		7,870		61,116
South Central Division		2,967		23,908
North Central Division		9,119		78,507
Western Division		2,089		19,814
The United States		46,336		416,826

a Includes District of Columbia and four counties of Maryland, since made the diocese of Washington.

METHODIST EPISCOPAL SUNDAY SCHOOLS.

The founders of Methodism were from the Established Church of England, generally called, as organized in the United States, the Protestant Episcopal. The church has been prominent in Sunday school work in England and the United States from the days of its founders.

The Methodist kindergarten of the church has for its purpose "to introduce the principles of the kindergarten into the primary department of the Sunday school; also to recommend that there be five sessions for this department during the week in addition to the one on Sunday."[1]

Methodist Episcopal Church.—The following table of Sunday schools, by conferences, is taken from the Year Book of the church, sometimes called the Methodist Church North:

Sunday schools, Methodist Episcopal, 1895.

	Schools.	Officers and teachers.	Scholars.
SPRING CONFERENCES.			
Alabama	128	806	6,401
Arkansas	50	474	2,875
Baltimore	416	7,432	52,795
Central Alabama	149	843	6,568
Central Missouri	132	885	5,512
Central Pennsylvania	587	9,586	70,186
Delaware	257	2,385	13,845
East German	69	1,126	8,133
East Maine	197	1,995	12,069
Florida	97	615	4,217
Georgia	52	246	1,925
Kansas	258	3,460	24,084
Lexington	128	809	5,647
Little Rock	122	641	4,072
Louisiana	222	1,141	10,615
Maine	153	1,893	12,672
Mississippi	221	1,168	10,370
Missouri	283	3,293	21,072
Newark	330	6,279	47,448
New England	207	5,982	46,564
New England Southern	208	3,076	27,226
New Hampshire	150	2,172	15,065
New Jersey	356	7,103	52,257
New York	445	6,588	45,571
New York, east	322	7,771	65,472
North Dakota	114	825	5,975
North Indiana	446	6,882	48,221
Northern New York	330	4,788	30,311
Northwest Kansas	207	2,114	13,198
Philadelphia	405	10,109	88,105
St. Johns River	30	254	1,345
St. Louis	236	3,007	24,159
Savannah	243	1,633	14,089
South Carolina	409	2,726	25,210
South Kansas	263	3,374	22,044
Southwest Kansas	242	3,110	21,519
Troy	375	5,849	40,786
Upper Mississippi	247	1,369	11,940
Vermont	180	2,132	13,843
Virginia	140	1,305	7,586
Washington	300	2,383	23,559
Wilmington	395	6,273	44,520
Wyoming	445	6,544	43,970
Mission.			
Gulf	12	98	497

[1] Methodist Year Book, 1896, p. 120.

Sunday schools, Methodist Episcopal, 1895—Continued.

	Schools.	Officers and teachers.	Scholars.
FALL CONFERENCES.			
Austin	27	278	2,021
Blue Ridge	133	711	6,528
California	266	3,109	21,719
California German	19	199	946
Central German	161	2,462	13,015
Central Illinois	364	4,750	34,907
Central New York	338	5,178	34,841
Central Ohio	420	6,747	46,608
Central Swedish	46	634	4,060
Central Tennessee	94	619	4,187
Chicago German	119	1,651	7,620
Cincinnati	360	5,820	43,539
Colorado	143	1,862	14,347
Columbia River	124	1,121	7,350
Des Moines	458	6,009	43,702
Detroit	554	7,595	57,307
East Ohio	555	8,809	59,095
East Tennessee	99	717	4,598
Erie	459	6,226	40,998
Genesee	438	6,581	44,619
Holston	255	2,034	15,504
Idaho	44	378	2,432
Illinois	555	7,563	52,985
Indiana	719	8,403	59,622
Iowa	341	4,129	27,043
Kentucky	224	1,781	14,017
Michigan	643	8,398	54,346
Minnesota	224	2,485	17,136
Montana	67	563	4,077
Nebraska	241	3,111	23,083
North Carolina	161	1,157	8,264
North Nebraska	191	2,089	14,629
North Ohio	327	4,888	33,166
Northern German	107	1,243	4,629
Northern Minnesota	181	1,905	14,558
Northwest German	92	1,005	4,298
Northwest Indiana	357	4,763	35,190
Northwest Iowa	289	3,272	24,171
Northwest Nebraska	52	439	2,488
Ohio	594	8,326	55,876
Oklahoma	148	1,160	6,911
Oregon	149	1,501	10,481
Pittsburg	388	6,228	51,137
Puget Sound	147	1,550	10,127
Rock River	411	7,198	59,859
St. Louis German	155	2,065	10,246
South Dakota	193	1,797	13,509
Southern California	135	1,916	14,562
Southern Illinois	436	4,964	35,380
Southern German	45	396	1,862
Tennessee	131	849	6,888
Texas	232	1,352	10,794
Upper Iowa	332	4,374	31,513
West German	135	1,471	6,380
West Nebraska	175	1,431	9,594
West Texas	158	857	6,988
West Virginia	605	6,431	41,313
West Wisconsin	379	3,381	23,730
Western Swedish	44	391	2,381
Wisconsin	277	3,382	23,959
Mission conferences.			
Black Hills	41	298	1,957
North Pacific German	23	171	711
Northern Swedish	60	385	2,368
Western Norwegian-Danish	24	125	755
Missions.			
Arizona	21	164	1,204
Nevada	40	368	2,336
New Mexico English	17	769	1,206
North Montana	32	206	1,420
Utah	21	207	2,076
Wyoming	19	185	1,188
Total	25,585	337,162	2,405,975

There are no data accessible for a satisfactory arrangement of the Sunday schools by States, but the scholars slightly outnumber the communicants or members of the Methodist Church at the census of 1890. The table of church membership by States, therefore, may roughly suggest the local strength of the Sunday schools. It is as follows:

Communicants or members, Methodist Episcopal, 1890.

States and Territories.	Communicants or members.	States and Territories.	Communicants or members.
North Atlantic Division:		North Central Division—Cont'd.	
Maine	22,996	Indiana	162,989
New Hampshire	12,354	Illinois	165,191
Vermont	17,268	Michigan	86,958
Massachusetts	58,477	Wisconsin	41,360
Rhode Island	6,084	Minnesota	30,837
Connecticut	29,411	Iowa	111,426
New York	242,492	Missouri	58,285
New Jersey	82,955	North Dakota	4,804
Pennsylvania	222,886	South Dakota	11,371
South Atlantic Division:		Nebraska	41,086
Delaware	20,412	Kansas	83,288
Maryland	82,069	Western Division:	
District of Columbia	9,630	Montana	1,901
Virginia	16,764	Wyoming	773
West Virginia	48,925	Colorado	8,560
North Carolina	16,433	New Mexico	1,750
South Carolina	43,200	Arizona	320
Georgia	25,400	Utah	1,048
Florida	5,739	Nevada	418
South Central Division:		Idaho	941
Kentucky	29,172	Washington	11,592
Tennessee	42,873	Oregon	9,436
Alabama	18,517	California	25,527
Mississippi	31,142		
Louisiana	15,073	North Atlantic Division	694,903
Texas	27,453	South Atlantic Division	268,572
Arkansas	10,076	South Central Division	176,398
Oklahoma	1,224	North Central Division	1,038,245
Indian Territory	838	Western Division	62,266
North Central Division:			
Ohio	240,650	The United States	2,240,384

Methodist Episcopal South.—The Methodist Episcopal Church South has the following enrollment in Sunday schools, given by conferences:[1]

Sunday schools, Methodist Episcopal South, 1895.

Conferences.	Schools.	Teachers.	Scholars.
Alabama	532	3,234	26,429
Arkansas	211	1,602	12,424
Baltimore	570	5,694	39,882
Columbia	35	198	1,233
Denver	15	124	1,068
East Columbia	29	187	1,530
East Texas	229	1,518	13,024
Florida	285	1,782	11,964
German Mission	25	161	936
Holston	618	4,651	39,735
Illinois	125	916	6,539
Indian Mission	223	1,205	9,273
Kentucky	248	1,818	14,610
Little Rock	344	2,023	16,372
Los Angeles	29	207	1,923
Louisiana	273	1,703	13,344
Louisville	351	2,445	20,374
Memphis	485	3,606	31,415
Mexican Border Mission *a*	53	136	1,460
Mississippi	350	1,993	16,473
Missouri	412	3,096	26,413

a Partly in Mexico. Sunday school statistics not separable for each country.

[1] Minutes of the annual conferences of the Methodist Episcopal Church South for the year 1895.

Sunday schools, Methodist Episcopal South, 1895—Continued.

Conferences.	Schools.	Teachers.	Scholars.
Montana	19	120	867
New Mexico	20	144	1,149
North Alabama	634	3,766	35,130
North Carolina	650	4,789	38,398
North Georgia	702	5,443	48,341
North Mississippi	465	2,418	21,169
North Texas	349	2,742	24,448
Northwest Texas	461	3,709	31,122
Pacific	103	659	5,066
South Carolina	702	4,912	40,197
South Georgia	502	3,745	30,115
Southwest Missouri	284	2,593	20,489
St. Louis	269	2,336	21,274
Tennessee	553	3,857	33,822
Texas	182	1,438	11,313
Virginia	783	8,412	59,619
West Texas	152	1,033	8,653
Western	52	450	2,644
Western North Carolina	680	4,527	45,033
Western Virginia	316	2,299	16,797
White River	215	1,384	10,983
The United States	13,694	99,144	813,555

The following table by States is derived from the above. A small error occurs for Texas from the inability to determine how many of the Mexican Border Mission were on each side of the line, and certain conferences are not limited by State lines. The table can not claim definite accuracy of distribution:

Sunday schools, Methodist Episcopal South, 1895.

States and Territories.	Schools.	Teachers.	Scholars.
South Atlantic Division:			
Maryland[a]	114	1,138	7,976
Virginia[a]	1,239	12,968	91,425
West Virginia	316	2,299	16,797
North Carolina	1,339	9,316	83,336
South Carolina	702	4,912	40,197
Georgia	1,354	9,188	78,456
Florida	285	1,782	11,984
South Central Division:			
Kentucky	599	4,263	34,984
Tennessee	1,772	11,790	101,803
Alabama	1,166	7,600	61,559
Mississippi	699	4,735	40,921
Louisiana	273	1,703	13,344
Texas	1,451	10,737	90,946
Arkansas	770	5,000	39,779
Oklahoma and Indian Territory	223	1,205	9,273
North Central Division:			
Illinois	125	916	6,530
Missouri	935	3,025	68,176
Kansas	52	450	2,644
Western Division:			
Montana	19	120	867
Colorado	15	124	1,068
New Mexico	20	144	1,149
Oregon	64	345	2,763
California	132	926	7,589
South Atlantic Division	5,349	41,603	330,151
South Central Division	6,953	46,442	392,609
North Central Division	1,142	9,391	77,360
Western Division	250	1,708	13,436
The United States	13,694	99,144	813,555

[a] The Baltimore Conference includes Maryland, the District of Columbia, and part of Virginia. There are no available returns by which the numbers for each can be separated accurately. An estimate has been made for Maryland and, including the District of Columbia, the rest of the numbers for the conference have been combined with returns from conferences in Virginia.

UNITED BRETHREN IN CHRIST.

The United Brethren in Christ is a body of Methodist affiliations, including a considerable German membership, and is to be distinguished from the Unitas Fratrum (Unity of Brethren), or Moravians.

The United Brethren Year Book, 1896, gives statistics of Sunday schools by conferences, as shown below, without such detail as will enable one to make a definite table by States:

Sunday schools, United Brethren in Christ, 1895.

Conferences.	Schools.	Officers and teachers.	Scholars.
Allegheny	185	1,985	14,559
Arkansas Valley	63	533	3,015
Auglaize (Ohio)	108	1,095	8,296
California	24	160	1,108
Central Illinois	59	564	2,348
Central Ohio	61	696	4,683
Colorado	14	109	790
Columbia River	21	121	1,000
Des Moines	116	953	6,264
East German	84	1,308	9,457
East Nebraska	60	563	3,998
East Ohio	115	1,338	9,405
East Pennsylvania	77	1,278	11,680
Elkhorn and Dakota	34	225	1,334
Erie (Pennsylvania)	108	870	5,678
Illinois	56	518	3,136
Indiana	131	1,069	7,460
Iowa	100	800	6,015
Kansas	80	687	4,521
Kentucky	8	40	236
Lower Wabash	167	1,591	10,345
Maryland	84	514	3,271
Miami	92	1,486	11,511
Michigan	24	231	1,383
Minnesota	35	190	1,375
Missouri	55	358	3,055
Neosho	66	492	3,391
Northwest Kansas	94	727	5,455
North Michigan	30	211	1,493
North Ohio	65	785	4,616
Ohio, German	34	375	2,217
Oregon	28	111	911
Parkersburg	212	1,535	9,749
Pennsylvania	123	1,991	14,760
Rock River (Illinois)	36	321	1,987
Sandusky	140	1,920	12,103
Scioto	141	1,190	8,990
St. Joseph	137	1,659	11,221
South Missouri	18	100	1,020
Southwest Kansas	21	106	910
Tennessee	27	173	1,917
Upper Wabash	109	1,056	7,210
Virginia	137	1,046	8,014
West Nebraska	60	453	2,891
White River (Indiana)	82	840	5,902
Wisconsin	48	322	2,083
Total	3,519	34,826	243,483

Nearly one-fourth of the strength of these schools appears to be in Pennsylvania, a considerable representation in Virginia and West Virginia, a small part in Kentucky and Arkansas, a larger part in the Western Division, while the greater part is in the States of the North Central Division.

FRIENDS, FIRST-DAY OR BIBLE SCHOOLS.

The Friends or Quakers comprise two considerable bodies, known as Orthodox and Hicksite, besides lesser divisions.

Orthodox Friends.—The Orthodox Friends often designate their First-day schools as Bible schools or Scripture schools. There is no central summary for the church, but several of the yearly meetings composing the organization make reports, from which a partial and inadequate view of their work has been compiled. The reports of yearly meetings have not been fully available.

The minutes of the New York Yearly Meeting of Friends, 1896, contain a table of nine causes of success, of which the first is "Dependence on the written word of God, not upon helps." Consecration and preparation are repeatedly emphasized in the table. In a table of fifteen present needs of the schools are: A separate primary room; punctuality; reading matter suitable for young children; memorizing of Scripture by the children. Among eight "results of a year of hard work and earnest prayer" are: An increase of Bible study, a deepening in spiritual things; an improvement in the use of Bibles in the class, teacher and pupil bring their own, leaving helps at home; children learning to read the Bible daily at home; conversions; troublesome boys becoming much changed.

The minutes of the Ohio Yearly Meeting, 1896, mention that many Friends are in the daily practice of reading a portion of Scripture with their families collected, attended by a season of devotion.

The minutes of the Iowa Yearly Meeting, 1896, have a remarkable record in the relatively large numbers in Bible schools, and in the large proportion of families that have some defined religious home training, there being a membership of 11,124, an enrollment in Bible schools of 7,709, and 983 families that read the Scriptures with daily devotions.

In the minutes of the California Yearly Meeting, 1896, the superintendent of the Bible school department makes the suggestion:

> In the future let our work in this department be known as Bible school work rather than Sabbath school, the title to my mind being in every way as comprehensive, and more appropriate to the work we design accomplishing.

The Baltimore Yearly Meeting reports gain in Bible schools. The report of the Home Mission Committee contains the suggestion that—

> An invitation to join in Bible study at a private house will often meet with a grateful response and open the way for very definite work.

The report of the same committee contains the following item illustrating success in that direction:

> We have recently learned of a family belonging to our meeting who are living at a great distance from any other Friends, and some miles from any church building, whose interest in those living about them was so aroused by the spiritual need

that they opened their house on First-day morning for Bible school and meeting. At last accounts so many had responded to their invitations that the rooms of the house were too small to hold them, 75 people being present on one day.

The following table gives the partial returns received:

Sunday schools, First-day schools, Friends (orthodox), 1895.

Yearly meeting.	Schools.	Officers or teachers.	Total enrollment.
New England	(a)	(a)	3,257
Philadelphia	17	(a)	(a)
New York	64	----	3,690
Baltimore	----	147	1,712
North Carolina	42	279	2,897
Ohio Bible Scripture School	46	506	3,212
Wilmington (Ohio)	36	186	2,598
Indiana	102	----	b6,062
Western (Indiana and Illinois)	110	----	9,821
Iowa Bible schools	135	----	7,709
Kansas	110	913	6,516
Oregon	(a)	(a)	(a)
California	10	119	900
Total	c672	c2,150	c48,374

a Not reported. *b* Average present at close of school. *c* Imperfect reports.

Hicksite Friends.—Among the Hicksite Friends the First-day schools are not all confined to Bible lessons, but they deal sometimes with ethical or humanitarian subjects.[1]

The Proceedings of the twentieth session of the First-day school general conference, held at Swarthmore College August 19–20, 1896, contain discussions and statistics of the work as done among that body of Friends known as Hicksite, reported in the last census as having in round numbers 22,000 members.

The schools generally use lesson leaves prepared by a literature committee. In the past four years the Gospels, Acts, and Romans have been the subjects of study, and it is proposed to continue with the Epistles till the next general conference (1899). Old Testament studies are under consideration. A Book of Devotional Poems and Selections from Whittier's Poems are considerably used.

The conference was marked by an earnest, hearty attention to the subjects in hand, with a minimum of incidental adjuncts. Cornelia J. Shoemaker took the leading part on First-day school extension. She said:

> Much would be accomplished in many of our First-day schools by better classification, and through the recognition of this pedagogical law that the same truth is not food for children of all ages. * * * In the child we see the type of the race. His narrowed horizon shuts out from view the truth we fain would teach, until a simpler lesson lifts him to that height from which it can be seen.
>
> The work for our smallest classes should be that most easily comprehended. Stories from the Old Testament, interspersed with lessons drawn from daily life and illustrated by means of those indispensable adjuncts to all school work, the

[1] One book so used is American Charities: A Study in Philanthropy and Economics, by Amos G. Warner. 1895. 12°, pp. 8 + 430.

blackboard and crayon, might prove helpful to the very little ones. From Old Testament stories they might pass to New Testament biography. * * *

A course in Bible history, or the growth of Israel's national life, in which might be noted the radical characteristics and unusual environment which had so marked an effect upon the development of its peculiar genius, should follow.

In connection it would be profitable to study the bibles of the so-called pagan world. Not to the Jews alone did the Great Soul of the Universe reveal Himself. His divine hand as surely guided the thought and destiny of every race. * * *

To know our own Bible truly we must know those of other lands.

The last years in the First-day school could be devoted to New Testament history and the study of the books of the Bible in the order of their birth. Thus by connected reading the message of each book will be made clear, and the student will realize as never before the incalculable debt which literature, art, and ethics owe to this library of the past.

This speaker advocated adult classes among work people like those of Friends in England, explained later by John William Graham.

The committee from the Baltimore Yearly Meeting said in its report:

In all of our meetings there are first-day schools where the older members with the younger join in sincere and zealous efforts to find the truths of religion as initiated by Christ in His wonderful Sermon on the Mount.

Positive denominational teaching is favored. "All of our schools use the 'Friends' Scripture Lessons,' and 'Illustrated Lesson Leaves,' and satisfaction with them appears to prevail," with a reservation as to their adaptation to infant classes.

William M. Jackson expressed his pleasure that the Baltimore schools taught the doctrines of the Society of Friends. He defined

the one distinctive doctrine * * * that there is to-day, as there ever was, an intercommunication of the Divine with the human spirit and that what Friends call the Light within is the revelation of God in the human heart.

The report from New York had a special feature: "In circulation among the country schools eight traveling libraries, containing 339 volumes." Edward B. Rawson said:

We appropriate a small sum every year to the use of the library committee. The committee fits out libraries of about fifty volumes each, boxes them up and sends them off to the First-day schools expressing a desire for them. When these First-day schools have read the books and gotten all they can out of them they are sent on to some other First-day school. Each year we put a few more books in circulation.

The report from Indiana elicited from John H. Shotwell:

That part of the report that struck me most forcibly was the penny collection for the use of the library, enforcing the importance of giving to religious works.

In the discussion, "How shall we better qualify ourselves for First-day school teaching?" Frances M. Robinson said:

In determining how we may better qualify ourselves for the work we must first have a distinct and definite idea of what we shall try to accomplish. The proper work of the First-day school may be embraced under three heads:

First. To give a knowledge of the Bible, its contents, its authoritativeness, its intent, and its rightful influence.

Second. To present and explain our principles and testimonies, the source from which derived, the circumstances which gave them birth, their reasonableness and sufficiency.

Third. To inspire devotion and conservation of life. To impress upon every heart the necessity for working out its soul's salvation with fear and trembling before God.

William W. Birdsall, indorsing Frances M. Robinson's presentation of the subject and her plea for study of the Bible and books showing the Friends' doctrines, would make her third purpose of the school first in order—

The one great purpose of the First-day school—to instill devotion and conservation of life, to teach the child its relation to God and its duty toward God. And as a means to that end, and not as a purpose in itself, to give to the child a knowledge of the Bible and its contents, its sources and its rightful influence.

Books named by the last two quoted were: Summary of Christian Doctrines as held by the Religious Society of Friends, by Samuel M. Janney; Religious Views of the Society of Friends, by Howard M. Jenkins—both very small books; Quaker Strongholds, by Caroline Stevens; Quaker Ideals, by Francis Frith.

John William Graham spoke upon adult schools in England of interest here in the possibilities of their reproduction in the United States. He said:

The English adult class is primarily a Bible class for workingmen, i. e., a mission class held generally early on First-day morning, taught by some man of good education and standing, but self-governed and essentially cooperative or democratic in its forms. There are also women's classes taught by women, and mixed classes.

This bold and simple description is almost all that can be said to be universally true about these schools, for variety is of their essence, and elasticity is the only rule of their practice. There is also only one marked characteristic of the spirit of them all, and that is brotherliness. * * * There are many imperfect teachers, speaking intellectually, among us, but there is one invariable and necessary characteristic of the successful worker, and that is an easy manner, a ready handshake, and a friendly, affable way with you. * * * Almost every additional quality that we may possess comes in useful, for the schools have developed in all sorts of directions from the original Bible class. There are savings banks, libraries, sick funds, Saturday afternoon rambles, holidays away together in the summer, fishing clubs, football clubs, microscopic clubs. There are tea parties and social evenings and debating societies. In some cases there are prayer meetings, mission meetings, and temperance meetings. There is everything that the cooperative spirit of man can devise for his comfort when once he gets into friendly relations with his fellows. * * *

Originally the movement, when begun fifty years ago, dealt with the most degraded men who could be found. Reading and writing were the bribe held out to those who would consent to come to the Scripture lesson, but we have now had in England nearly a generation of complete public schools, and reading and writing are dropped as no longer needed.

In my own class we do not confine ourselves to the Bible for subjects. We utilize all that is excellent and of good report. There is nothing I am personally so fond of as going exegetically through an epistle of Paul. We once spent four years over the life of Jesus. We treat all biblical matters with the best knowledge we can obtain from biblical critics. We have had lessons on Buddhism and

Mohammedanism, on the lives of many great men, recently on Mazzini and John Woolman, and on current moral and social questions. * * * I am accustomed to give a lesson for half an hour to discussion, and lively times we have * * * but evincing thought and interest, and capable after all contradictions of being judiciously guided to an amicable settlement. * * * We conclude with a short devotional pause.

He stated that in Birmingham 10,000 men—4,000 in the Friends' schools, from which the others have copied—gathered at from 7 to 8.50 a. m. for their schools.

Other classes are quite different from my own. They are often extremely evangelical in tone, and inquiry is not tolerated out of the beaten track. In fact, every teacher does what he thinks is right, and attracts his own sort of men.

In reply to a question whether the Friends in England had First-day schools among their own members, Mr. Graham said:

We rely entirely upon home teaching for that. We have none whatever.

At an evening meeting in the Friends' religious conference Mr. Graham spoke upon "Three needs of the church."

I. * * * The need of consecration to aggressive work. * * *
II. * * * The service of the ministry. * * *
III. * * * There is not enough living, modern knowledge of the Bible among your ministry as it is. * * *

I therefore plead with you to read the Bible more and study it more. In England we Friends all read it twice a day in our families, and at our schools we learn off quite a considerable fraction of the New Testament.

He commended the attention given to biblical study in the original languages at Bryn Mawr College (orthodox) and urged its adoption at Swarthmore (Hicksite) as an aid to general biblical education and influence upon First-day schools.

The following are the statements of enrollment as reported at the Swarthmore conferences:

First-day schools. Friends (Hicksite), 1896.

State.	Schools.	Officers and teachers.	Scholars.
New York	20	113	622
New Jersey	20	165	1,291
Pennsylvania	63	545	4,834
Delaware	3	30	225
Maryland	12	71	598
District of Columbia	1	4	30
Virginia	6	28	130
Ohio	11	52	250
Indiana	7	68	470
Illinois	2	21	126
Iowa	3	22	113
Nebraska	3	19	107
Total	151	1,138	8,796

UNIVERSALIST SUNDAY SCHOOLS.

The Universalist Register for 1896 gives, under each State, each parish by name, showing the date of organization of the Sunday school and its membership, with other items relating to the church. The table below is made from the statistical recapitulation of the Register.

Sunday schools, Universalist, 1895.

States and Territories.	Schools.	Members.	States and Territories.	Schools.	Members.
North Atlantic Division:			North Central Division—Continued:		
Maine	83	6,114	Indiana	29	1,535
New Hampshire	28	1,571	Illinois	50	3,821
Vermont	39	2,536	Michigan	22	1,548
Massachusetts	110	16,304	Wisconsin	14	1,044
Rhode Island	9	1,509	Minnesota	9	1,057
Connecticut	14	1,758	Iowa	15	855
New York	96	7,485	Missouri	6	207
New Jersey	5	611	North Dakota	1	35
Pennsylvania	27	1,615	Nebraska	4	225
South Atlantic Division:			Kansas	7	536
Maryland	2	275	Western Division:		
District of Columbia	1	100	Colorado	1	50
Virginia	1	65	Idaho	1	10
West Virginia	1	65	Washington	2	75
North Carolina	1	40	Oregon	3	102
South Carolina	2	55	California	8	679
Georgia	1	65			
South Central Division:					
Kentucky	3	122	North Atlantic Division	411	30,508
Tennessee	1	70	South Atlantic Division	9	665
Alabama	3	123	South Central Division	11	435
Mississippi	2	70	North Central Division	208	14,509
Texas	2	50	Western Division	15	916
North Central Division:					
Ohio	51	3,646	The United States	654	56,028

CONSOLIDATED STATEMENT OF SUNDAY SCHOOLS IN CERTAIN DENOMINATIONS, 1896.

There are various denominations whose statements for Sunday schools have not been available. The Methodist Yearbook, 1896, gives numbers for certain branches of the churches, without details. Including these with those already named, the following table has been made:

Sunday schools reported by certain denominations presumed to be included in the International Sunday School Convention table, 1895.

Denomination.	Schools.	Officers and teachers.	Scholars.
Baptist	22,776	162,298	1,558,315
Congregational [Trinitarian]	4,925	.....	*a* 682,580
Independent	1,541	.....	71,857
Evangelical Association	1,640	19,082	95,256
Evangelical Lutheran	4,915	49,813	445,696
Friends:			
Orthodox *b*	672	2,150	48,374
Hicksite	151	1,138	8,796
German Evangelical Synods of North America *c*	.....	8,694	82,628
Holland Christian Reformed	72	.....	9,344
Methodist Episcopal	20,585	337,162	2,405,975
Methodist Episcopal South	13,604	99,144	813,555
African Methodist Episcopal Zion *d*	2,175	13,145	108,820

a Members.
b Imperfect reports.
c Evangelischer Kalender, 1896, St. Louis, Mo.; also 18,000 in parochial schools.
d This and the following entries of Methodist connection are from the Methodist Yearbook, 1896, as given, without detail. The figures for certain important branches are not given.

Sunday schools reported by certain denominations, etc.—Continued.

Denomination.	Schools.	Officers and teachers.	Scholars.
African Union Methodist Protestant	350	900	2,770
Colored Methodist Episcopal Church in America	4,007	7,098	79,876
Evangelist Mission	.....	.....	1,200
Free Methodist	942	.....	32,552
Methodist Protestant	1,844	16,235	105,314
New Congregational Methodist	25	.....	.....
Primitive Methodist	108	.....	11,754
Wesleyan Methodist	465	.....	18,344
Moravians	93	1,333	11,642
Presbyterian Church in the United States	1,830	19,223	138,735
Presbyterian Church in the United States of America	7,706	108,711	947,413
Protestant Episcopal	.....	46,336	416,826
Reformed Church in America	763	.....	a113,779
Reformed Church in the United States	1,643	b20,096	170,428
United Brethren in Christ	3,519	34,826	243,482
United Evangelical Church	650	b,758	66,158
Universalist	654	.....	c56,028
Total, as thus reported	103,785	956,142	8,747,859

a Total enrollment.
b Returns defective, some States and parts of States omitting this item.
c Members.

The totals in the above have very little value, from the want of uniformity in the manner of reporting and from the omissions in the reports.

INTERNATIONAL SUNDAY SCHOOL CONVENTION.

The International Sunday School Convention includes in its statistics what are called Protestant and Evangelical schools. Although certain denominations are strongly represented in the convention, it would hardly be strictly correct to say that they were all officially represented. It occurs that Sunday schools and local associations of Sunday schools send delegates to the international convention, and that the authorities of some denominations so far follow the decisions of the convention as to use its Scripture selections for lessons, but individual denominations, or special interests within a denomination, put forth their own lesson helps or comments, and many schools and some denominations pay small heed to the lesson schemes marked out by the international committee.

The statistics already given are presumably included in the table put forth by the Eighth International Sunday School Convention, as are also the facts regarding some denominations that have not been available in separate form. The international reports of the Sunday schools are made up for areas, as towns, cities, counties, States, and it is not easy to determine just what was included in each case.

In pages immediately following are given extracts from the proceedings of the Eighth International Sunday School Convention, Boston, Mass., June 23–26, 1896, indicating something of the views presented and the decisions of the association.

George C. Lorimer, D. D., Boston, Mass., in the course of an

extended address, plead for more definite study of the Bible itself, saying:

I don't think any teacher has the right to take before his Sunday school class a "lesson help" of any shape or kind. I have been pained when during the past winter I have visited many Sunday schools to see so many teachers standing with the Bible shut and a lesson paper on the back of it, trying to teach the class. You are thereby missing the prime object of the Sunday school, which is not to teach the specific opinions stated in a Sunday school helper, but is to inspire the youth with the profoundest reverence for the Word of God.

Another thing I have noticed. Apart from the use of helps in such classes, how little effort was made, is being made, to memorize the Word of God. * * *

Born an Episcopalian and bred an Episcopalian, from that I drifted into a Baptist Sunday school. I believe that my whole future was determined by that Sunday school. And why? First of all we were taught, and especially taught, to memorize God's Word. You know that what comes to you in early life, almost unconsciously, will color your actions afterwards. I studied, I memorized and repeated, and I could repeat to-day the whole Gospel of St. John from the beginning to the end. I won a prize on the Psalms of David, and all the critics of the world, somehow, can not convince me that David did not write the Psalms.

William Reynolds, field superintendent, outlined the work of the international organization, making the following statements regarding its work in this country:

The teaching of God's Word is left almost entirely to the Sunday school. Comparatively little is done in Christian homes, and none in our public schools or other secular educational institutions. If, therefore, the children and youth of this present generation are to be "rooted and grounded" in God's Word, it must be in the Sabbath schools of our land. Hence the necessity of better schools, better facilities, better management, and better teaching. * * *

Factors in the improvement.—1. Perfected organization. In order that improved methods may be made known to the schools and workers, it is necessary that a complete chain of organization be maintained from the international committee to the individual teacher. Therefore we have this international meeting every three years, composed of delegates from each State. * * * Once a year we have the State * * * convention, composed of delegates from each county in the State or province. Next comes the county convention, composed of delegates from each township or district in the county. And last we have the township convention, that embraces every Sunday school officer and teacher within its boundary. The township overlooks the work in its limits, the county in its entirety, and the State in its domain. The international organization is the watchtower, from which we overlook the whole field.

2. Normal classes. A great advance has been made in the widespread establishment of normal classes for training and developing better teachers. No permanent improvement can be made in our schools until our teaching reaches a higher standard and we copy more closely the one Model Teacher. Never man taught like this Man. * * *

3. Cooperation of public educators. * * *

4. Young people's societies. * * *

5. House-to-house visitation. * * *

6. Home-class department. * * * The advance along this line is most encouraging. It is believed by many of the foremost Sabbath-school workers of America to be the best thing adopted in Sabbath-school work since the international system of lessons was introduced twenty-four years ago. * * *

7. Publications. Perhaps no factor has done more for our work along all lines than the development and increase of publications devoted exclusively to Sunday-school work. We refer with pride and gratitude to the two leading publications, the International Evangel and the Sunday-School Times. * * *

I thought it might be of interest to give you the names of all the State * * * Sunday-school papers, and also names of States * * * in whose interest they are published.

State * * * *Sunday-school papers.*—Arizona, the Independent; Connecticut, Connecticut Sunday School Record; Florida and Georgia, the Southern Chautauqua Journal; Illinois, the Trumpet Call; Indiana, the Awakener; Iowa, Iowa Sunday School Helper; Kansas, Kansas Sunday School Journal; Kentucky, Kentucky Sunday School Union; Maine, Sunday School Reporter; Maryland, the Field Record; Massachusetts, Massachusetts Sunday School Record; Michigan, Sunday School Advance; Minnesota, Special Edition Evangel; Missouri, Special Edition Evangel; New York, Sunday School at Work; New Jersey, New Jersey Sunday School Messenger; North Dakota, Special Edition Evangel; Ohio, Ohio Sunday School Worker; Oklahoma Territory, Oklahoma Sunday School Worker; Oregon, Oregon Sunday School Tidings; Pennsylvania, the Sunday School Herald; South Carolina, Sunday School Trumpet; South Dakota, Special Edition Evangel; Tennessee, the Tennessee Sunday School Worker; Wisconsin, the Christian Union.[1] * * *

The following States * * * are counted as "Banner States" * * *—that is, every county is organized and holds a convention at least once a year:

Connecticut, New Jersey, Illinois, Missouri, * * * Massachusetts, Kansas, Delaware, New York, Vermont, Indiana, Rhode Island, Ohio, Maine, Maryland, Iowa, New Hampshire.

The following States, * * * while not Banner States, are well organized, and I prophesy will ere long be Banner States:

California, Louisiana, Alabama, Nebraska, Oklahoma, Georgia, Michigan, Mississippi, Oregon, Tennessee, Kentucky, Minnesota, Montana, Pennsylvania. * * *

The following are not organized: Alaska, Idaho, Nevada.

The other States have organizations more or less efficient. When we can lend them more assistance, they will soon develop into well-organized States.

The States needing special help are Arkansas, Nevada, North Dakota, Virginia, Wisconsin, Colorado, New Mexico, South Dakota, Washington, Wyoming, Idaho, North Carolina, Texas, West Virginia. * * *

The States that have made the greatest progress during the past three years are Pennsylvania, in organization; Iowa, in ingathering; New York, in home class work, and Illinois and Missouri in normal work. Oklahoma Territory has a phenomenal increase owing to her peculiar conditions as a Territory.

The States * * * employing paid workers are as follows:

Connecticut employs 1; District of Columbia, 1; Florida, 2; Illinois, 6; Massachusetts, 3; Missouri, 2; Indiana, 2; Iowa, 1; Kansas, 1; Kentucky, 3; Louisiana, 1; Maine, 1; Maryland, 2; Nebraska, 1; Oklahoma, 1; Michigan, 1; Minnesota, 1; New Hampshire and Vermont, 1; New Jersey, 2; New York, 10; Ohio, 3; Pennsylvania, 3; Rhode Island, 1; South Carolina, 1; Texas, 1. * * *

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[1] This does not include journals under denominational auspices, nor all private publications, either with chief reference to lessons or for circulation among children. A list of children's papers is given under the subject of "Libraries," on a later page.

S. B. Capen, president of the convention, defined the work of the Sunday school thus:

Let me say, first, that next to the home the Sunday school is the mightiest force for righteousness in our land, because it is touching most effectively the young life of the nation. * * *

It has been said that the teachings of what was commonly called the "three R's—Reading, 'Riting, 'Rithmetic—is not enough; there must be a fourth R, Righteousness," and this is the special mission of the Sunday school.

H. M. Hamill, field worker, reported of work in the South. The imperfection of records which he names is not peculiar to the South. He said in the course of his report:

There are many signs of advance along the lines of the most approved and modern Sunday-school work. City Sunday-school unions are springing up in the larger cities. * * * The best modern Sunday-school architecture is being introduced. Conveniently constructed and equipped Sunday-school buildings are taking the place of the old. * * * Maps, blackboards, charts, the best appliances and literature are in demand. The grading and classification of schools, their better management, the training of teachers, are chief topics of the Southern Sunday-school publications. * * *

The statistical reports of the Southern Sunday-school work, I am sure, are imperfect and incomplete. The fault is not with the workers, but with the condition of the work, which, with rare exceptions, has not reached that stage of progress that secures full and complete statistical exhibits. There is such a large, unorganized, and undrilled territory in the South that a just exhibit of its real Sunday-school strength will for years to come be lacking. If the figures of the denominational boards and secretaries could be secured, it would give a truer statement than we now have from the meager returns of the State and county officers. The relative strength of the white and black Sunday-school enrollment and of that larger element not counted of both whites and blacks is an unknown quantity in most of the Southern States. I am sure that the present estimates do not give justice to the real statistical status of the South. * * *

The most serious problem of Southern Sunday-school work is the problem of the blacks. How many millions of these are in or out of Sunday schools no man knows, but in the answer to that question every man North and South is vitally interested. The known conditions are ground for our most serious and anxious thought. I do not believe that this problem, with all that is involved in it, can be clearly understood except by those whom it most immediately concerns and by those who in the spirit of Christ are looking upon it face to face. I believe that the Southern people, especially the Southern white churches, have been misunderstood, and that there is a far kinder feeling between the two races and a stronger desire to aid in the solution of the problem than is commonly supposed to exist. I believe that there are many thousands in the South whose cradles, like my own, were rocked by the hands of slaves who look upon the black man with genuine sympathy and brotherly love and would gladly aid in any movement that would open the doors of the gospel to him and his children. Already a strong movement on the part of the white churches of the South has begun, and is daily gaining strength. But the harvest is great and the laborers far too few. The white churches for most of the generation that has passed since the war have been battling against their own poverty, and could not carry forward the great and needed work among the blacks. The blacks are waiting to be led. One of the pathetic sights of the Southland to me is the universal desire of the blacks to have churches and Sunday schools for themselves and their little ones. After five

years of international service in the South and a thorough acquaintance with the white and black leaders, I am justified in saying that the white Christians are anxious to help in the evangelization of the negro.

B. F. Jacobs, as chairman of the executive committee, said:

A resolution was adopted expressing strong preference for one lesson only for the whole school, with a suggestion to the lesson committee as to an optional course for primary classes if the lesson committee decide to try the plan. * * *

Field workers, missionaries, and secretaries are now employed in twenty-three States and the District of Columbia. * * *

Confessedly, our greatest need to-day is qualified teachers of little children. The kindergarten movement is gathering force and old methods of teaching are giving place to new. This must be true in Sunday-school work, and our primary-class teachers are now the most importunate pleaders for help. In six States and one province a qualified primary teacher is now employed as a State worker, and primary unions are being formed in our cities and larger towns. In New Jersey a ten days' institute for primary-class workers was attended by 175 persons, and the plans for this year cover twenty days, and an attendance of 300 is expected. The total number of primary unions reported is 102, as follows: In California, 1; Colorado, 2; Connecticut, 2; District of Columbia, 1; Illinois, 2; Indiana, 1; Kentucky, 6; Maine, 3; Massachusetts, 24; Michigan, 1; Minnesota, 2; Missouri, 7; New Jersey, 15; New York, 8; Ohio, 6; Oregon, 1; Pennsylvania, 16; South Carolina, 1; Tennessee, 1; Wisconsin, 1, Wyoming, 1. * * *

The International Sunday-school lessons.—This convention has a most important work to do. It will choose a new lesson committee who are to select the lessons which are to be studied during the closing years of this century and the first five years of the twentieth century. It is probable that changes will occur in the committee, and it is almost certain that the plan will be continued. The agitation of the question and opposition to the plan has failed to remove it from the place it has long occupied in the minds and hearts of Sunday-school workers. Even the urgent demand upon the part of the few for a separate course for the primary department has less support now than it had a year or two ago.

John Wanamaker made strong claims for the preeminent office of the Sunday school:

The influence exercised by the Sunday school, where it has had proper development, has been so beneficial and far-reaching that, over and above any other religious agency, it is believed by many to come the nearest to answering the greatest need of the human race at the present hour. For the reason, first, that no other school exists which is conducted systematically and continuously for teaching the one Book containing God's revelation of himself and the rule for His children's lives. Second, it is the only school organized to teach the Bible at the most teachable age; to inform the mind, influence the heart, and mold the life in the highest principles of unselfishness and uprightness in the fear of God and love for our fellow-men. * * *

Since the uniform lessons were introduced, with the accompanying literature upon lessons and management, the past twenty years have registered fifty years' growth by the advance that has been made in perfecting the system. * * *

It is not a fad or fashion, the plaything of unemployed laymen or the pastime of leisure-blest women. It is not independent of, but an approved agency of the universal church, sanctioned by the highest church courts and under the control of pastors, rectors, elders, deacons, and vestries. Neither is it a mere incident of the church. It often exists on the outskirts of cities where there is no church, and in all new regions invariably precedes the establishment of the church.

In the newer States of this country the Sunday school is frequently the pioneer of the settlement, the only social center in the township, the only public moral center, providing the only library in the neighborhood, the only book center, the only music center, the only post-office distributing generally any printed matter, the mother of the church. Few can ever know how large a part the little cross-roads Sunday school had in allaying the discontents and loneliness of the first homes of the early settlers. In the cities it must not be supposed that the excellent college settlement work of the present time is a new discovery. It is only the old mission Sunday school under a new name. The old-time mission schools did precisely the same kind of work throughout the week days as the college settlements, with the teaching of the Bible on Sundays in addition.

Rev. C. R. Blackall, a writer of Sunday-school lessons, said:

It must be admitted that the Sunday school has not kept up the standards of pedagogics that are certainly essential to the best success. The work being voluntary, the teaching material in great part untrained and inefficient and the limitations and hindrances numerous, the results are not what they might be under more favorable conditions.

The report of the lesson committee, Warren Randolph, D. D., chairman, shows that—

In 1872 began the system of uniform international lessons, arranged first in courses requiring seven years and in 1893 to require six years. In 1893 there was an emphatic expression of the convention for "one lesson for all." There had never been a divided opinion in the lesson committee as to the wisdom of the plan of uniformity adopted at the beginning, and they felt confirmed by the vote of the convention; but in 1894, when that committee met, they were embarrassed by an earnest appeal from influential workers for a separate course of lessons for primary classes. The committee still judging a uniform course best, was willing to try to meet the wishes expressed, and prepared a special primary lesson list, which they submitted for instructions. They also submitted the question of a special temperance lesson quarterly.

The next two speakers condemned current methods, Mr. Patterson Dubois saying that "the secular school is ahead" of the Sunday school in its recognition of "the germinal fact of the child as the primary principle," and Margaret C. Brown pleading for conformity in the Sunday schools to the principles of Froebel.

W. D. Pearce said:

Three of the greatest hindrances to Sunday-school management are: (1) Lack of regular and punctual attendance; (2) lack of lesson preparation; (3) lack of systematic giving.

Nehemiah Boynton, D. D., said:

The one thought which * * * I wish to lay upon your minds and hearts here and now is this, that the essential of a Sunday-school teacher after all is simply spiritual preparation. It is magnificent to have all the equipments with which to do our Sunday-school work. * * * It is splendid to be an accomplished student in the work of God, to understand all the niceties of that magnificent book, to see the continuity of history springing in Genesis and finding its splendid culmination over in the Book of Revelation. But there is something better than that. The teacher who has the equipment and the teacher who has the knowledge, but who has not the spiritual preparation in his own life and the spiritual aspiration in his own soul, will never lead the boys and girls very near to

the beautiful gates, with all his magnificent equipment and with all his marvelous erudition. Now, that is a thought of great comfort for those of us, who as Sunday-school teachers realize our defects and deficiencies as we come to our boys and girls. It is a great comfort to us to understand that we can be great and towering in our Christian success if only we will school and discipline and develop our own lives according to the principles of the Gospel of Jesus Christ our Lord. For a great Christian will be a great Sunday-school teacher, even though that Christian be unable to read or to know the letters of the alphabet, because that Christian will have the practical experience out of which to develop the souls put into his care and keeping.

The following was among recommendations adopted, as was also the resolution succeeding:

That as the crying need of our Sunday schools is trained teachers we strongly urge weekly meetings in each school for the study of the lesson; institutes for groups of schools for the study of the Bible and of methods of instruction; that in our colleges and seminaries special courses in Bible study and teacher training be provided for the ministers and Christian workers of the church as vital to this progress, and that we approve of the recognition of all graduates in a normal course of study by the State and provincial associations. * * *

Resolved, That this convention reaffirms its belief in the uniform system of international lessons as the best yet devised, and hereby pledges its loyal support.

The statements of speakers at the Boston convention regarding the imperfection of records, for instance those of Mr. Hamill, are to be kept in mind in estimating the value of the tables. In this matter, as in many others of public report, the original records are defective, and no compiler can bring together a series of ultimate accuracy, since so much of the foundation is only estimate. In the statement of attendance put forth by the association the individual responsible for each State report is named, and the dependence one can place in each case can be judged by those best acquainted with the conditions in that case.

With the limitations mentioned, the following table represents the numerical strength of the Sunday school of Protestant Evangelical connection recognized by the International Sunday School Convention.[1]

[1] See note at end of report on Sunday schools.

[*Protestant Evangelical*] *Sunday school statistics for the United States.*

[Compiled for the Eighth International Convention, Boston, June 23–26, 1896. M. D. Byers, secretary, Chicago, Ill.]

States and Territories.	Sunday schools.	Membership.			County organization.			Home class department.		Primary unions.	Paid workers.	Authority for reports.
		Officers and teachers.	Scholars.	Total.	Counties.	Organized.	Banner counties.	Departments.	Membership.			
Alabama†	3,850	23,725	205,240	228,965	66	43	2	1	40	.....	.....	Ed. T. Witherby, Shelby, Ala.
Alaska Territory‡	14	52	1,100	1,152	.....	.....	.....	.....	.....	.....	.....	Rev. S. Jackson, Sitka, Alaska.
Arizona Territory‡	50	378	2,670	3,048	5	1	.....	.....	.....	.....	.....	M. W. Messenger, Phœnix, Ariz.
Arkansas‡	2,050	13,962	151,000	164,962	75	16	.....	.....	.....	.....	.....	John W. Glenn, Batesville, Ark.
California†	1,810	18,448	137,899	156,347	53	8	.....	50	2,500	1	.....	H. Morton, San Jose, Cal.
Colorado‡	485	4,699	37,220	41,919	60	22	.....	.....	.....	2	.....	C. W. Heisler, Denver, Colo.
CONNECTICUT*	1,082	15,429	122,948	138,377	8	8	8	251	8,000	2	2	W. H. Hall, West Hartford, Conn.
DELAWARE*	422	5,888	43,634	49,522	3	3	3	2	80	.....	.....	Aubrey Vandever, Clayton, Del.
DISTRICT OF COLUMBIA*	207	4,485	42,643	47,128	1	1	1	15	550	1	1	J. F. Johnson, Washington, D. C.
Florida*	2,400	12,119	94,870	106,989	45	32	2	.....	.....	.....	2	Mrs. A. J. Phares, Yalaha, Fla.
Georgia‡	6,889	59,885	310,612	370,497	137	123	3	.....	.....	.....	.....	Asa G. Candler, Atlanta, Ga.
Idaho†	100	750	5,250	6,000	21	.....	.....	.....	.....	.....	.....	Walter S. Bruce, Boise City, Idaho.
ILLINOIS*	7,816	91,739	682,366	774,105	102	102	38	500	10,000	2	6	W. B. Jacobs, Chicago, Ill.
Indian Territory‡	387	2,942	16,393	19,335	7	.....	.....	.....	.....	.....	.....	Rev. J. McC. Leiper, Tahlequah, Ind. T.
INDIANA*	5,306	60,538	432,229	492,767	92	92	22	284	6,307	1	2	Chas. L. Weaver, Indianapolis, Ind.
IOWA*	6,286	50,288	414,152	464,440	99	99	20	87	3,000	.....	1	Mrs. M. M. Bailey, Shenandoah, Iowa.
Kansas*	4,811	44,909	281,499	326,408	105	105	39	50	2,500	.....	1	J. F. Drake, Topeka, Kans.
Kentucky*	3,350	22,894	224,856	247,750	119	102	4	65	2,700	6	3	Miss M. F. Huber, Louisville, Ky.
Louisiana†	700	6,000	40,000	46,000	60	13	1	43	2,544	.....	1	H. H. Ahrens, New Orleans, La.
MAINE*	2,000	13,560	96,425	109,985	16	16	1	156	8,000	3	1	Rev. B. P. Snow, Yarmouth, Me.
MARYLAND*	2,528	34,942	261,941	296,883	23	16	4	6	250	.....	3	Frank Woods, Baltimore, Md.
MASSACHUSETTS*	1,915	39,162	287,013	326,175	14	14	14	200	9,000	24	3	J. N. Dummer, Boston, Mass.
Michigan*	4,200	47,000	324,000	371,000	84	75	15	50	2,500	1	1	M. H. Reynolds, Owosso, Mich.
Minnesota†	1,550	18,250	150,500	168,750	81	31	.....	50	2,500	2	1	G. W. Lewis, St. Paul, Minn.
Mississippi†	1,664	11,967	94,533	106,500	74	25	.....	.....	.....	.....	.....	C. W. Mills, Columbus, Miss.
MISSOURI*	7,137	68,937	626,868	695,805	114	114	21	100	5,000	7	3	Robt. Rutledge, St. Louis, Mo.
Montana†	207	1,740	14,509	16,249	23	12	.....	.....	.....	.....	.....	Ebben Sharpe, Helena, Mont.
Nebraska‡	3,430	27,838	183,944	211,782	90	70	2	50	2,000	.....	.....	R. H. Pollock, Beatrice, Nebr.
Nevada‡	59	868	3,342	4,210	15	.....	.....	.....	.....	.....	.....	Rev. Geo. R. Bird, Carson, Nev.
NEW HAMPSHIRE*	563	6,550	54,171	60,721	10	10	2	50	2,500	.....	1	I. B. Miller, Keene, N. H.
NEW JERSEY*	2,252	38,930	301,417	340,356	21	21	7	175	5,000	14	2	Rev. E. M. Fergusson, Trenton, N. J.
New Mexico‡	90	592	4,900	5,492	13	1	.....	.....	.....	.....	.....	H. E. Fox, Albuquerque, N. Mex.

ADDENDA—STATISTICAL.

* Accurate reports made by State or Territorial association to the Eighth International Convention, Boston, Mass., June 23–26, 1896.
† Estimated reports made by State or Territorial association to the Eighth International Convention, Boston, Mass., June 23–26, 1896.
‡ Reports made to the Seventh International Convention, St. Louis, Mo., August 31–September 2, 1896.

Protestant Evangelical Sunday school statistics for the United States—Continued.

[Compiled for the Eighth International Convention, Boston, June 23-26, 1896. M. D. Beer, secretary, Chicago, Ill.]

States and Territories.	Sunday schools.	Membership.			County organization.			Home class department.		[illegible]	Paid [illegible]	Authority for reports.
		Officers and teachers.	Scholars.	Totals.	Counties.	Organized.	Banner counties.	Departments.	Membership.			
NEW YORK	9,0[illegible]	121,7[illegible]	1,290,214	1,331,[illegible]	60	60	60	1,010	31,600	8	19	Timothy Hough, Syracuse, N. Y.
North Carolina †	[illegible]	40,35[illegible]	382,706	430,[illegible]	96	16	3					H. N. Snow, Durham, N. C.
North Dakota †	6[illegible]	4,0[illegible]	38,350	42,350	46	10						Hugh Cork, Marshall, Minn.
OHIO	[illegible]	[illegible]	695,395	783,125	88	[illegible]	1[illegible]	123	2,488	6	3	Robt. Cowden, Dayton, Ohio.
Oklahoma †	[illegible]	[illegible]	28,000	32,000	[illegible]	1[illegible]		12	600			Fred L. Wenner, Guthrie, Okla.
Oregon †	1,22[illegible]	11,[illegible]	80,017	91,[illegible]	32	13	1			1	1	F. R. Cook, Portland, Oreg.
Pennsylvania	9,21[illegible]	111,1[illegible]	1,190,361	1,301,[illegible]	67	67	4	75	3,000	16	3	Rev. C. J. Kephart, Annville, Pa.
Rhode Island †	3[illegible]	6,10[illegible]	48,250	54,350	16	16		55	2,000		1	W. B. Wilson, Providence, R. I.
South Carolina	2,41[illegible]	24,1[illegible]	217,596	241,711	36	20		5	200	1	1	R. O. Sams, Gaffney, S. C.
South Dakota †	750	6,195	38,175	44,640	78	25						C. R. Fisher, Redfield, S. Dak.
Tennessee	1,[illegible]	43,9[illegible]	317,117	361,020	96	40			...	1	1	Isaac Emory, Knoxville, Tenn.
Texas ‡	[illegible]	[illegible]	10,[illegible]	270,780	240	10		5	200			Jink Evans, Corsicana, Tex.
Utah †	1[illegible]	[illegible]	7,950	8,657	23	9	1					J. A. Smith, Ogden, Utah.
VERMONT †	[illegible]	[illegible]	56,240	64,300	14	14		50	2,500		1	Rev. J. H. Babbitt, W. Brattleboro, Vt.
Virginia ‡	[illegible]	11,511	[illegible]	270,567	100	[illegible]						Chas. P. Rady, Richmond, Va.
Washington ‡	1,100	[illegible]	[illegible]	65,450	34	1[illegible]						H. L. Sizer, Seattle, Wash.
West Virginia †	[illegible]	20,515	142,400	162,915	55	13	2					G. Buttenutter, St. Marys, W. Va.
Wisconsin †	2,500	20,000	230,000	250,000	70	15		50	2,100	1		Rev. A. J. Benjamin, Oshkosh, Wis.
Wyoming †	16	4[illegible]	8,400	8,965	12	8				1		G. H. Smith, Carbon, Wyo.
Total	1[illegible]	1,391,650	10,866,528	12,258,153	2,882	1,710	301	3,663	121,050	101	54	

ADDENDA STATISTICAL.

* Accurate reports made by State or Territorial association to the Eighth International Convention, Boston, Mass., June 23-26, 1896.
† Estimated reports made by State or Territorial association to the Eighth International Convention, Boston, Mass., June 23-26, 1896.
‡ Reports made to the Seventh International Convention, St. Louis, Mo., August 31-September 2, 1893.

NOTE.—The report of the home department is mostly estimated by W. A. Duncan, Ph. D., although it is believed by the States reporting that the figures here given are conservative. The report of the primary unions is compiled from the report of the secretary of the International Primary Union.

ORGANIZATION.

Organized States and Territories printed in Roman.
Unorganized States and Territories printed in *Italics*.
States and Territories where organization is thorough printed in SMALL CAPS.
States and Territories where organization is good printed in full-face Roman.
States and Territories where organization is partial printed in small Roman.

The following table, giving the summaries of successive reports from 1875 to 1896, inclusive, indicates the reported gains in that period:

Sunday schools. Statistics as presented to the International Sunday School Conventions.

Year.	Sunday schools.	Teachers.	Scholars.	Total.
1875	64,871	753,060	5,790,683	6,543,743
1878	78,046	853,100	6,504,054	7,357,154
1881	84,730	932,283	6,820,835	7,753,118
1884	98,303	1,043,718	7,668,833	8,712,851
1887	109,860	1,108,265	8,048,462	9,156,727
1890	108,939	1,151,340	8,649,131	9,800,471
1893	123,173	1,305,989	9,718,422	11,024,371
1896	132,097	1,394,630	10,893,523	12,288,153

THE HOME DEPARTMENT, SUNDAY SCHOOLS.

It would not be safe to say that no Sunday schools return those in the home department in their general statistics of attendance, but it is so far customary to report the home department separately that it represents a large addition to the work done in the Sunday-school rooms.

The home work is reported to be especially important in its results in the South, opening up an additional opportunity for education and developing family influences in a rapidly increasing degree. In recent addresses, Rev. L. B. Maxwell, agent of the International Association for work among the negroes, has pointed out that when adults have pledged themselves to study the lesson for at least thirty minutes each week their interest leads them to spend more time, and that where the parents interested can not read they have their children read to them, so that whole families study together, the children meantime gaining in general training. The system of visitors also develops social life in a wholesome way, so that there is a building up of higher civilization. This forms one of the bright spots in a work that in the nation at large is open to much criticism.

The method of management and the enrollment are taken from the report made by W. A. Duncan, Ph. D., at the Eighth International Sunday School Convention (1896), as follows:

Methods and organization.—The method of operation is that of the University Extension movement and the Chautauqua Literary and Scientific Circle, for in both of these credit is given for work done away from college or schoolroom, whether it be accomplished by individuals or in class work. One of the first things to do is to look over your church roll and mark every person who does not attend your Bible school. Then take the list of scholars and see how many of their parents are not members of the church or of the school. Then make a complete canvass of the whole parish, neighborhood, or town, especially of the children of school age, between 5 and 21, first urging every one as you make the canvass to attend the main school. Then revise and combine these lists into one, and this will be your field for introducing the study of the Bible into the home. After you have made out this list call together those you think will be interested in estab-

lishing a home department. Then select ten or twenty active workers, call them together in your study and talk the matter over, and show them the number of persons who are not studying the Bible. Say to one, for example, "Here are ten people living in your neighborhood. Will you take care of them?" She agrees to do so, and you assign another ten to a second worker, and another to a third, and so on, until you have portioned out the one hundred and fifty or more people who are not studying the Bible systematically. You call these fifteen or twenty people your visitors. These visitors go to the people with a pledge card, on which is printed: "I promise to study the regular Sunday-school lesson half an hour each week." These cards are signed, and the names are enrolled as members of your school, each visitor and her students constituting a class. You may use the card or not; you may send these visitors out to explain the system by word of mouth, or you may have a little circular printed. After securing the members send for your extra Sunday-school quarterlies, then call your visitors together and divide the quarterlies among them, giving in connection with each a record card or envelope on which every student can keep the record of lesson study and contributions for three months.

The visitors go out with these quarterlies and record cards about the 25th of December, leaving them in the various homes. Then about the 25th of March they go out again and gather up the record cards, leaving new quarterlies and cards, speaking a word of encouragement, and seeking to remove any hindrances or difficulties that may exist. These records are brought back to the secretary of your Sunday school and he enters them in the secretary's book.

The home department should not be made a separate organization, but should be considered as holding the same relation to the Sunday school as the primary or intermediate departments. At the end of the next quarter do the same thing. Some will fall out, others will join; but persist in the work. Let the pastor preach a sermon on the subject; use your library; let the department be recognized in your prayer meeting; let it be an essential part of your work; persist in it and you will find that the results will pay. * * *

SUMMARY OF REPORTS.

Sunday school home departments in the United States.

States and Territories.	Departments.	Visitors.	Members.	Total.	Remarks.
New York	1,010	4,500	30,100	34,600	Reported.
Michigan	50	.....	2,000	2,000	
Massachusetts	200	1,000	8,000	9,000	
New Hampshire	50	250	2,000	2,250	
District of Columbia	13	50	500	550	
Connecticut	256	.....	.....	6,411	Do.
New Jersey	200	.....	.....	8,000	Estimated.
Ohio	200	.....	.....	8,000	Do.
Indiana	200	(61 counties)		8,000	Do.
Missouri	100	.....	.....	5,000	Do.
Illinois	200	.....	.....	5,000	Do.
Pennsylvania	75	.....	.....	3,000	Do.
Kentucky	50	(45 reported)		2,568	Reported.
Wisconsin	50	.....	.....	2,500	Estimated.
Iowa	50	.....	.....	2,500	Do.
California	50	.....	.....	2,500	Do.
Nebraska	50	.....	.....	2,500	Do.
Kansas	50	.....	.....	2,500	Do.
Minnesota	50	.....	.....	2,500	Do.
Maine	50	.....	.....	2,500	Do.
Vermont	50	.....	.....	2,500	Do.
Rhode Island	50	.....	.....	2,500	Do.
Colorado	50	.....	.....	2,400	Do.
North and South Dakota	100	.....	.....	4,000	Do.

HEBREW SABBATH SCHOOLS.

No matter what may be one's personal religious views, he can not properly study the full subject of Sunday schools if he does not examine them on the broad basis of their community of avowed religious purpose. Every organization based on religious convictions must maintain itself in accord with mental and moral laws. Whatever differences of private opinion may exist, every successful teacher must have a quality or a method that has some interest to other persons interested in education. This will require the study of schools not included in the statistics of the International Sunday School Association, namely, those of the Roman Catholics, the Unitarians, the Latter Day Saints, all accepting the same Bible as a sacred book; those of the Hebrews, who accept the Old Testament only, and those of some minor bodies, not at this date available, whenever their conditions are evident.

The reports of Hebrew Sabbath schools may be studied to great advantage, especially if one will observe how far they would apply were the word "Hebrew" dropped and the name of any other group that uses the Hebrew scriptures substituted.

The information as to Hebrew Sabbath schools in this country has been partly obtained through the courtesy of Dr. David Philipson, president of the Hebrew Sabbath School Union of America. Returns are not regarded as complete, many schools failing to reply when the figures were collected, which was in 1889. The published reports of the Union of American Hebrew Congregations have been freely utilized.

The schools have sessions on Sunday morning from 9 o'clock to 11 or 11.30. Some have an additional session on Saturday from 9 to 10 a. m. The rabbi is the superintendent. Where there is no rabbi, as is the case in some very small congregations, a layman has charge of the school. In quite a number of congregations there are what are known as post-communion classes, consisting of the young people who have been confirmed, usually under the personal charge of the rabbi.

It is not easy to make an accurate statement regarding the Jews in this country. There are many Jews not identified with any congregation. Each congregation is a voluntary association governed by its own rules and responsible to no other except through its own pledges.

In 1872 Jews at Cincinnati made an effort "with a view to form a union of congregations, the object of which should be: First, to establish a Jewish theological faculty; second, to publish proper books for our Sabbath schools; third, to adopt a code of laws defining Judaism." The following was published under date of May 18, 1873, in the Jewish papers of Cincinnati:

Owing to the difficulty experienced in obtaining the names of the numerous congregations in the West and South, the committee has been unable to address the call to all whom it was desired to reach. We therefore republish it, and trust

that each Jewish congregation, from the Alleghanies to the Pacific and from the Lakes to the Gulf, will consider the call hereunto annexed as if directed to itself, and all those who have not done so will respond by electing delegates in accordance therewith at as early a day as possible.

The committee charged with the call had been able to obtain the address and location of about one hundred congregations. Out of this movement grew the Union of American Hebrew Congregations; the organization of the Hebrew Union College in Cincinnati, Ohio, embracing three departments, viz, preparatory, Hebrew classical, and Rabbinical; and the Hebrew Sabbath School Union. To enter the schools preparatory to the college, one must be a student or graduate of a high school or college; for the Hebrew classical, the candidate must be a graduate of the preparatory or a student of a high school or college, and in the rabbinical department the candidate must be a graduate of the Hebrew classical and of a university or college. The graduates of the last department receive the degree of doctor of divinity as qualified for the ministry. Prizes were offered for the best biblical history, the best post-biblical history, and the best catechism, to make the Sabbath school work more efficient.

The scope of the organization was extended by a resolution to "invite every Hebrew congregation in the United States and its Territories to join the union." So much was initiated before 1875. At the meeting of 1875 the president of the council delivered an address, in which he said:

The fundamental cause of all misfortune, be it individual, in the family, the State, or the nation, can be directly traced to disregard of the ten commandments. The ten commandments are to human affairs what dew, rain, and sunshine are to the vegetable kingdom. * * *

There are signs * * * that Israel is growing careless of its religion. The young men are not joining the congregations. Perhaps it is because the old are beginning to disregard the Sabbath as a day of rest, as a day devoted to God and the family, divinely given for mental elevation and advancement.

This second council initiated a supply of a translation of the Hebrew Scriptures, the Old Testament of the Christian, so that they might be sold at a low uniform price in all congregations. This translation is known as Leeser's Bible, from Isaac Leeser, the translator.

At the third council (1876) the Biblical History of Rev. D. T. Deutsch, of Hartford, Conn., was recommended as the best existing text-book of its kind. A book written in the German language was recommended as the best text-book for post-biblical history, namely, Dr. Cassel's Leitfaden für den Unterricht in der Jüdischen Geschichte.

The following statement is abbreviated from the constitution as revised in 1878:

It is the primary object of the Union of American Hebrew Congregations to establish a Hebrew theological institute; * * * to establish, sustain, and govern a seat of learning for Jewish religion and literature; to provide for and

advance the standard of Sabbath schools for the instruction of the young in Israel's religion and history and the Hebrew language; to aid and encourage young congregations; * * * to provide, sustain, and manage such other institutions which the common welfare and progress of Judaism shall require—without, however, interfering in any manner whatsoever with the affairs and management of any congregation.

In 1878 a prize was offered for the best hymn book for Sabbath schools.

As the culmination of an effort pursued during the previous two years to collect statistics, the report of 1878 shows 223 congregations, 12,030 members (heads of families, apparently), and 12,674 scholars receiving religious instruction under 652 teachers. The number of Jews residing in the United States so far as heard from reached 227,528, and it was estimated that 250,000 would include the whole Jewish population.

There had been an organization known as the Board of Delegates of American Israelites. A noteworthy incident of the sixth council of the Union of American Hebrew Congregations (1879) was the merging of the board of delegates in the union and the presentation of a statistical report whose summary varied little from that of the previous year. The following extracts are from the proceedings of this (sixth) council:

Tuition in the Hebrew Union College is free to all, without religious test and without registering fees. The hours of tuition are from 4 to 6 p. m. daily, which will not interfere with the secular studies, they being from 8 a. m. until 2 p. m. daily. * * *

The branches of study comprise—

(1) The Bible in the original; the Targumim, and the most important commentaries.

(2) Tradition: (*a*) The Talmud; (*b*) Midrash; (*c*) Casuistic literature.

(3) History of Israel, its doctrines and customs.

(4) Jewish religious philosophy.

(5) Homiletics: Instruction in the conduct of public divine services.

(6) Hebrew and Aramaic grammar.

(7) German language and literature, in case the students have not the requisite facilities to pursue this part of their studies elsewhere.

(8) Art of teaching (pedagogics), with especial reference to the congregational schools for religious instruction.

NOTE.—The study of the secular branches shall be regulated by the faculty in accordance with the local school systems and opportunities. * * *

The fifth year is intended for such students as shall have previously completed their course of study at one of the colleges or universities of the country, and thus shall be able to devote their whole time to the studies in the Rabbinical College. The hours of instruction shall be thirty a week.

In 1877 the Emanu-El Preparatory School of the Theological Seminary was organized in New York City. In 1879 there were three classes—6, 20, and 9 members, respectively; the sessions were Sunday mornings, 10 to 12; Wednesday afternoon, 4 to 6; Saturday afternoon, 3 to 5. Tuition free to all wishing to attend.

In 1885 a circular was issued to each Jewish minister whose address was attainable covering the inquiry—

What measures seem to you practicable to assure to the rising generation of Jews such Jewish teaching as will more surely tend to create in them an active interest in Jewish affairs and an earnest participation in the intellectual and moral life of the Jewish community.

The replies deserve study for their treatment of general principles as well as for the information they contain as to the special conditions and needs of Jews. Only exceedingly abbreviated citations can be given here. Dr. Solomon Eppinger, Cincinnati, laments—

That in this country not only most of the youth, but a great portion of the older Jews, do not care much about Judaism and Jewish affairs.

As causes "of this unhealthy condition" he notes the freedom which many Jewish immigrants assume to extend to religion, only desiring to make money and be buried in a Jewish burying place; the clinging to ceremonies by certain others without conception of the real object of religion; the disposition of some to avoid being known as Jews for social or commercial reasons.

The consequence of all this is that in the families of such so-called Jews every trace of Judaism is avoided and the children grow up without any education in religion; and even if such children should be sent to a Jewish Sabbath school, what support would the teaching of the school find in the family? And yet in regard to the teaching of religion, as in many other matters, the house is the principal place where the culture of the heart begins and must be mainly sustained.

Rev. I. Epstein, St. Louis, writes in a degree like Dr. Eppinger:

1. It is, I think, generally conceded that the religious training the child receives in early years at home is the basis of all subsequent improvement by teachers of the Sabbath school, self-instruction, and intercourse with the companions in later years. * * * The mothers in Israel must be awakened to a sense of responsibility in order that they may see the necessity of reestablishing a true Jewish home by their own pious example, observance of Sabbath and holy days, prayers, etc., but, above all, by instilling into the tender hearts of their dear children the principles of truth, virtue, and morality.

2. The teachers employed at our Sabbath schools must be in every respect, both intellectually and morally, competent to teach the Jewish religion. * * *

3. There must be more time given to the religious education of the Jewish youth. An hour on Sabbath morning and two hours on Sunday will not suffice to teach Hebrew, catechism, and biblical or post-biblical history.

Rev. Dr. J. S. Goldammer, Nashville, Tenn., responded:

The measure to assure such Jewish teachings is simply the Jewish teaching as laid down in that glorious old Book of Books, in the six verses of the sixth book of Deuteronomy, where it is said, "Thou shalt teach them thy children." * * *

Religious education is the only practicable measure to assure that teaching which you desire for the rising generation. This measure, I am sorry to say, is entirely out of use at the present. The parents of the present generation have dropped it, and I know of no other measure able to substitute it. * * *

We are living in a materialistic age, in which mammon is the supreme power, the business place the temple, and pleasure-seeking the worship. * * *

This condition of affairs, however, was not brought about by the rising generation, but by the raising generation. * * *

Let the old folks manifest actually their thoughts of God and their religious feeling by those forms adopted by modern reform, and the young folks will emulatively follow in their wake. Let the raising generation pray and worship God in the vernacular of the country, reverently; * * * let them keep holy the Sabbath day and go into the house of God, father and mother, and take their children by the hand as they do when they go into places of amusement; let them begin to train their children in Israel's pure religion. * * * Let the ministers preach not only rational and philosophical, but preeminently Scriptural sermons, and let the Sabbath schools be conducted so as to impress more their heart than their brain.

Rev. Henry Iliowizi, Minneapolis, Minn., convinced "that the plague of American Israel is ignorance, or, at best, half knowledge," favors, first, "a more thorough instruction in Jewish history;" second, "a rational interpretation of the miraculous events in our Scriptures," and "a good Jewish weekly or monthly for the young."

Nearly all the respondents lay emphasis on home training as fundamental, but Jacobs Jacobson, of Atlanta, Ga., says:

Wherever our youth are lax in their participation in religious affairs, I think the rabbis first and the parents next are to be blamed.

Rev. S. Mannheimer, Cincinnati, Ohio, mentions two things as—

essential to revive and reawaken the spirit that animated the generation of the past. A synod (or call it conference, convention) must establish a common platform for American Judaism. * * *

The second essential point is the celebration of the weekly Sabbath. * * * All our measures to arouse the spirit of the young generation are in vain if we show them by our example that lucre and gain have more power over us than the dictates of our religion. What beneficent results can we expect from the teachings of the school and the pupil if they are at variance with the practices of life.

The next quotation, from the same speaker, is to be interpreted as summing up a statement, including a condemnation of whimsical, capricious, and sensational aberrations in the pulpits, for which he blames such congregations as allow and encourage them:

Uniformity of divine service, in which, like in former times, old and young must take an active part, and a more general observance of the Sabbath. These are, according to my humble opinion, the two essential requisites for the maintenance of Judaism. Without these two mainstays, all other devices and measures will only be palliatives that may for a while mitigate the evil, but will not cure it.

Rev. Dr. Messing, Indianapolis, Ind., says:

The cause of the decline of religious sentiment among our rising youth is to be traced mainly to the want of religious practices in our homes. The utter neglect of our modern Jewish parents to heed that admonition of the wise King (Proverbs xxii, 6), * * * "Train up the lad in accordance with his course; even when he groweth old will he not depart from it," seems to me to be the root of this great evil. There may hardly be 10 per cent of Jewish family circles where a word of prayer is yet heard or a religious ceremony yet practiced. The synagogue and Sabbath school can only cooperate with home religious influence and example. As long as our home life remains void of these, I can see no remedy against and no hindrance for the further decline of religious sentiment among our rising youths.

Rev. Dr. M. Mielziner, Cincinnati, Ohio, says:

The principal agents for such training and education are:
(1) The parental home.
(2) The Sabbath school.
(3) The synagogue or temple.

Dr. Mielziner's reply occupies 4 octavo pages, but at the risk of inadequate expression of his suggestions, the extracts must be only those which most relate directly to Sunday-school work, or to the training of the youth. He says:

In the first place, I have to point to home training. * * * In doing away with obsolete forms and ceremonials of domestic life, many parents have, at the same time, banished from their homes every religious practice, every prayer and devotion. The children grow up without their hearts and minds ever being touched by religious thought and feeling, and without seeing and hearing anything that reminds them of their allegiance to God and Israel.

The few weekly hours which such children later spend in the Sabbath school can not make up for the neglect of their religious home training. * * *

Regarding our Sabbath schools, I beg leave to notice that many of them labor under the great disadvantage of having no teachers thoroughly prepared. * * *

Another defect connected with our Sabbath schools is the early age at which the children are considered absolved from the obligation of attending such schools. After having gone through the solemn and highly important act of confirmation at the average age of 13 to 14, they quit the Sabbath school, and with it all further religious instruction. The religious knowledge which they acquired is, even in the best case, elementary only. * * * The divine service is either entirely neglected by them, as their parents fail to show them a good example, or if they do attend they remain but passive lookers on, as our mode of worship fails to invite their participation in congregational song and devotion, and their intellect is not yet ripe enough to be interested in and benefited by the lectures from the pulpit.

Dr. Mielziner would organize normal classes to prepare teachers for higher branches of religious instruction, especially English Bible reading with explanations and post-biblical history. For those above 17 years of age he would extend the organization and educational work of young men's Hebrew associations and increase the publication of the treasures of Jewish literature in English in agreeable form.

Rev. Dr. Samuel Hirsch, Philadelphia, Pa., feels "deeply aggrieved at the wording of the circular which pertained to 'the rising generation of Jews,'" and says:

As long as it is proclaimed religion is for others, for the rising generation, I see no hope. The rising generation imagines itself as wise, if not wiser, than the grown-up people, and if grown-up people do not need spiritual food, should they need it?

Rev. Dr. Voorsanger, Houston, Tex., is like Dr. Hirsch in locating the trouble:

What, I ask you, should induce the children to be better than the parents? I tell you we are going too far in accusing our youth. We should accuse ourselves. * * *

To summarize: Our youth can be saved and recovered by—
(1) The example of the elders.

(2) The induction and application of a positive religion.

(3) The reorganization of worship upon a more distinctly Jewish basis.

(4) By making the Sabbath school the most important organization in the country, instead of the sündenbock [1] to be kicked by everybody.

Rev. D. H. Zirndorf speaks of the work of the home and the exemplary lives of adults. Of the principal drawbacks to the Sabbath school, he says:

(*a*) They are only Sabbath and Sunday schools, with other words, the insufficiency of the time; (*b*) their half-and-half character, hemming them in between day school and domestic dolce far niente, between a Christian Bible class and a laborious Jewish training class; (*c*) the comparative insufficiency of the text-books; (*d*) the inadequateness of the teaching staff, composed in smaller congregations especially, but as it happens in larger towns likewise, mostly from volunteers, not less well intended than they are ignorant and unsystematic. It speaks for itself that the standard of Jewish knowledge becomes daily more and more lowered; (*e*) the want of a discipline ably sustained and enforced; (*f*) the inadequate action or inactivity (as it may be) of administrative boards and the oratorical posing of the usual spokesmen of each respective congregation.

To remedy these evils is at present almost impossible. I offer the following suggestions for consideration: (*a*) It is chimerical to think of a uniform teaching method; (*b*) the publication of good text-books is to be encouraged by prizes; (*c*) poorer congregations should receive financial aid from the union; (*d*) school libraries should be established; (*e*) the scanty time should not be squandered away by too much singing exercise or recitation of poems; (*f*) professional and salaried teachers should, wherever feasible, be appointed.

In 1886 a Sabbath school convention in Cincinnati formed a Hebrew Sabbath School Union with a constitution covering the following article (VII):

SECTION 1. The executive committee shall prepare plans to carry into effect the unification of the work of the Hebrew Sabbath schools as specified in the following sections:

(*a*) Instruction in the principles, doctrines, and precepts of Judaism.

(*b*) Instruction in reading of the Bible in the vernacular.

(*c*) Instruction in the Hebrew language at least to the extent of understanding the Hebrew prayers and appropriate portions of the Bible.

(*d*) Instruction in Jewish history covering the biblical and post-biblical periods.

(*e*) Instruction in music, with a view to prepare children to participate in the service.

SEC. 2. In addition to the foregoing, which shall constitute a six years' course, including a one year's course for confirmation, the executive committee shall also provide for a two years' course of instruction for a post-confirmation class and a complete course of study for normal classes, so as to educate advanced pupils to become teachers, and likewise to enable persons remote from congregations to prepare themselves to organize and conduct religious classes with the aid of the lessons supplied by this course.

SEC. 3. The executive committee shall provide at intervals for the publication of pamphlets containing graded lessons to be taught in said schools, such lessons to include brief texts with explanatory notes. They shall also provide for the publication of the various books of the Bible, with commentaries, also for a juvenile Jewish literature of books, compiled from the rabbinical writings, or in which works of later Jewish authors are utilized.

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[1] Scapegoat.—J. H. B.

SEC. 4. The executive committee shall furnish free to each Sabbath school copies of its publications, and each pupil in every Sabbath school shall receive free one copy of each pamphlet published by the union.

There is some overlapping in a list of subjects taught in the Hebrew Sabbath schools, but it seems unavoidable, as the Bible of one school may or may not be parallel with the Proverbs, the Psalms, or the Pentateuch of another, and the history of one may or may not include the biblical history of another.[1]

The American Bible Society publishes an edition of the Old Testament without chapter headings, which is in use by many Jews. They object to the headings in ordinary copies of King James's version as without due authority and sometimes erroneous. The King James translation is not fully satisfactory to them; hence the preparation of the Leeser Bible, already mentioned.

The best accessible notice of a current Hebrew Sunday school is that of Mr. A. Caswell Ellis,[2] who visited a Hebrew reformed school at the Temple Emanuel on Fifth avenue, New York. He does not give its size. He says:

This school meets every Sunday morning, but follows completely the principles and methods of the public schools. Children must get permission from the educational committee of the church in order to enter the school. They all meet together in a large hall for the opening exercises of devotion, and then the school

[1] The following statement of subjects taught, books used, with authors and translators, is condensed from the statistical report published by the Union of American Hebrew Congregations in 1889:

Subjects and books, Hebrew Sabbath schools, 1889.

Subject.	Books and authors or translators.
Bible	Mendes, A. D. Moses, Leeser.
Bible questions.	
Biblical ethics.	
Biblical history	Deutsch, Hecht, Katzenberg, Mendes.
Catechism	Jacobs, Katzenberg, I. Leeser, Loeb, Mendes, Moses, Nathan Pike, Szold.
Child's Bible	Mendes.
Chronological tables	Kohler.
Ethics	Moses.
Hebrew	Primer, Aufrecht, Sonn, Union; Reader, Union, Felstentahl, Mannheimer, Stein; Grammar, Mannheimer.
History	Adler, Deutsch, Hecht, Katzenberg, Katzenstein, Pinnock.
Hymns	Hecht.
Judaism	Wise.
Morals.	
Music.	
Pentateuch.	
Post-biblical history	E. Hecht, Magnus.
Proverbs	Moses.
Prayer book.	
Psalms	Mielziner.
Religion	Jacob's Hebrew Faith, Jacob's Path of Truth, Nathan's Road to Truth.
Scripture questions	Pike.
Singing.	
Also not clearly defined:	
Text-books of	De Solla.
Manual	Dr. Gottheil.
Guide	Epstein.
Publications of	A. J. Messing.
Cards of	Superintendents of schools.

[2] The Pedagogical Seminary, June, 1896, p. 393.

divides into five grades, each grade going into an entirely separate room. There are only these five regular classes in the school, each studying one of the five grades of Katzenberg's Biblical history. There is also opportunity to study post-biblical history, by Hecht.[1] In these large classes the teacher is seated at his desk on a platform at one end of the room, and conducts the recitation just as do the teachers in the graded schools. The pupils are marked, and are promoted from one section to another as they would be in public schools.

The following table of enrollment is prepared from the latest available official statement of Hebrew Sabbath schools:

Hebrew Sabbath schools, 1889.

State.	Schools.	Children enrolled.			Teachers.		
		Total.	Boys.	Girls.	Total.	Paid.	Volunteer.
Massachusetts	5	430	224	206	20	7	13
Connecticut	2	261	108	153	28	.....	28
New York	13	4,642	2,220	2,422	126	49	77
New Jersey	2	204	144	150	6	5	1
Pennsylvania	11	1,023	526	497	47	15	32
Maryland	3	346	200	146	6	.....	6
Virginia	2	226	113	113	14	.....	14
West Virginia	2	110	57	53	3	1	2
North Carolina	1	14	4	10	3	.....	3
South Carolina	1	10	5	5	2	.....	2
Georgia	1	73	29	44	7	.....	7
Kentucky	4	361	179	182	14	7	7
Tennessee	2	172	81	91	14	.....	14
Alabama	3	164	77	87	16	.....	16
Mississippi	4	231	115	116	21	8	13
Louisiana	4	361	170	191	23	6	17
Texas	5	173	79	94	13	.....	13
Arkansas	2	134	64	70	13	.....	13
Ohio	14	1,209	596	613	40	18	22
Indiana	6	295	129	166	22	1	21
Illinois	7	912	500	412	36	13	23
Michigan	3	311	131	180	13	1	12
Wisconsin	3	229	114	115	10	1	9
Minnesota	2	155	88	67	8	.....	8
Missouri	6	701	309	392	28	15	13
Nebraska	1	81	37	44	4	.....	4
California	8	588	323	265	21	13	8
The United States	112	13,506	6,622	6,884	558	160	398

ROMAN CATHOLIC SUNDAY SCHOOLS.

In its plans for the education of youth the Roman Catholic Church keeps its Sunday-school work under ecclesiastical supervision and direction. The celebration of the mass is in many instances the preparatory service for the Sunday school, and often includes the exposition of the Scriptural lesson of the day. The church has a number of brotherhoods and sisterhoods devoted to teaching, for which the members are carefully trained, and there are summer professional schools which even experienced teachers attend annually. In the best schools the organization has a high degree of regularity and definiteness. Some priest, chosen for his fitness, has the responsible supervision. Instructors are utilized as far as practicable from the teaching orders, and enough are assigned to give, in general, one teacher to every seven or eight pupils. The gradation in the schools

[1] Misprinted "Hischst" in the magazine quoted. Letter from Mr. Ellis.—J. H. B.

is more or less formal, according to circumstances, ranging from the youngest class in a catechism of elementary faith and duty to adults with text-books in Bible or church history. There is a great variety of catechisms, and there are several authors whose works are used in the study of Bible and church history, prepared or approved by bishops or higher authority in the dioceses interested.[1]

The following course of religious instruction for the children in a prominent church[2] is illustrative:

Text-books.—The Baltimore Council Catechisms, Nos. 1, 2; Deharbe's Catechisms, complete, No. 2; Gilmour's Bible History, Murphy's Bible and Church History, Noethen's Church History, The Bible.

Hours of instruction.—A daily recitation of lesson in school; instructions on the gospels at the 9 o'clock mass, Sunday morning; Sunday school for one hour immediately following 9 o'clock mass; special instruction, 9 to 10 a. m., Saturday morning, for children who do not attend Catholic schools.

For three months of the year instructions are given to first communicants.

The children in the church schools receive a "lecture" once a week in Christian doctrine.

The Catholic yearbooks do not give the statistics of Sunday schools, though they show nearly 800,000 pupils under daily religious instruction in 3,361 parishes at parochial schools. There is no estimate of the number in the Catholic Sunday schools that has more than a suggestive value. A general idea of their strength in any State may be based upon the return of communicants at the last census under the uncertain presumption that the number in Sunday school equals one-fourth the number of communicants. This number, as returned in the census of 1890, is given below as a guide to any one for a relative distribution of Sunday-school membership by States.

Roman Catholic communicants or members, 1890.

States and Territories.	Communicants or members.	States and Territories.	Communicants or members.
North Atlantic division:		South Central division:	
Maine	57,548	Kentucky	92,504
New Hampshire	30,920	Tennessee	17,060
Vermont	42,810	Alabama	13,230
Massachusetts	614,627	Mississippi	11,348
Rhode Island	95,755	Louisiana	211,763
Connecticut	152,945	Texas	90,691
New York	1,153,130	Arkansas	3,845
New Jersey	223,274	Oklahoma	1,270
Pennsylvania	551,577	Indian Territory	1,240
South Atlantic division:		North Central division:	
Delaware	11,776	Ohio	326,114
Maryland	141,410	Indiana	119,100
District of Columbia	37,593	Illinois	473,324
Virginia	12,356	Michigan	222,261
West Virginia	15,653	Wisconsin	249,164
North Carolina	2,640	Minnesota	271,310
South Carolina	5,309	Iowa	164,522
Georgia	11,228	Missouri	162,864
Florida	16,867	North Dakota	28,427

[1] An extended account of a large Catholic Sunday school in New York City is given by A. Caswell Ellis in the Pedagogical Seminary, June, 1896.

[2] St. Patrick's, Washington, D. C.

Roman Catholic communicants or members, 1890—Continued.

States and Territories.	Communicants or members.	States and Territories.	Communicants or members.
North Central division—Cont'd.		Western division—Continued.	
South Dakota	25,720	Washington	20,848
Nebraska	51,503	Oregon	30,231
Kansas	67,562	California	156,846
Western division:		North Atlantic division	2,931,586
Montana	25,149	South Atlantic division	254,883
Wyoming	7,185	South Central division	452,841
Colorado	47,111	North Central division	2,169,880
New Mexico	100,576	Western division	421,668
Arizona	19,000	Alaska	559
Utah	5,968		
Nevada	3,955	The United States	6,231,417
Idaho	4,809		

LATTER DAY SAINTS SUNDAY SCHOOLS.

The Church of Jesus Christ of Latter-Day Saints has its principal membership in the States of Utah and Idaho. The history of the church needs as much notice here as will enable any one to form an intelligent opinion regarding its Sunday schools.

The Latter-Day Saints accept the Scriptures of the Old and New Testaments, and, in general, the precepts of conduct and the ordinances therein prescribed. They baptize by immersion.

The distinction between Latter-Day Saints and most others who accept the Christian Scriptures begins with their claims of recent and continued revelations largely embodied in the Book of Mormon, from which has grown the common name of Mormons, distasteful to them. The book was put forth in 1830. There are later revelations claimed, including a "revelation on the eternity of the marriage covenant, including plurality of wives, given through Joseph the Seer in Nauvoo, Hancock County, Ill., July 12, 1843." The contest over polygamy between the Latter-Day Saints and the nation is to many the principal distinctive feature of their position, yet a branch of the church, embracing about one-eighth of the total strength, has steadily rejected polygamy.

The peculiar history of this church and its possible future in this country justify extended citations from its Sunday-school literature.

The statistics of the Sunday schools here presented are from those published by the Deseret Sunday School Union for the year ending December 31, 1895. That union published in tabular form (1) the number of schools in each stake, (2) the name of the stake, (3) Stake superintendents with post-office addresses, (4) number of times the school was held during the year, (5) number of male teachers and officers, (6) number of female teachers and officers, (7) total of (5) and (6), (8) average attendance of officers and teachers, (9) number of male pupils, (10) number of female pupils, (11) average number of pupils, (12) total number of officers, teachers, and pupils, (13) number of pupils in the primary department, (14) number of pupils in first

intermediate department, (15) number of pupils in second intermediate department, (16) number of pupils in higher department, (17) number of books in libraries, (18) cash on hand at last report, (19) miscellaneous cash collected, (20) total collection from nickel donation, (21) grand total collected, (22) cash disbursed, (23) cash in treasury.

There are nearly 40 per cent more male teachers and officers than female; about 3 per cent more female pupils than male.

The Deseret Sunday School Union represents a thorough organization, with publications to aid the various subdivisions of the work. There is a general superintendency of all of the schools. There is a stake superintendent for each stake of Zion. The term stake is applied somewhat like diocese in some other churches, including all who form a unit for ecclesiastical purposes.

In each stake of Zion the high priests constitute a quorum without respect to number; * * * a quorum of elders numbers 96, a quorum of priests 48, a quorum of teachers 24, and a quorum of deacons 12. Each of these quorums has its president and two counsellors.[1]

There were 35 stakes in the United States besides the missions—to the Eastern States, 2 schools, headquarters Brooklyn, N. Y.; to the Northern States, 6 schools, headquarters Kansas City, Mo.; to the Southern States, 27 schools, headquarters Chattanooga, Tenn.

The books used by the Latter-Day Saints for instruction range from the Bible down to books of personal experiences.

There are primers and other books for the younger children, "A guide for the officers and teachers of Sunday schools in the various stakes of Zion," lectures upon Sunday-school work, normal Sunday-school training classes in the academy at Provo, and an annual Sunday-school conference of two days' duration in each stake of Zion. The first Sunday of September is designated as "nickel day," on which it is the aim to have each Sunday school contribute a nickel for every pupil enrolled. Twenty per cent of the money thus raised is retained for local expenses and the remainder is turned over to the general fund.

In 1894 quite definite suggestions were printed on the "Manner of conducting and grading of Sunday schools," from which the following paragraphs are condensed:

Order of conducting school.—Officers and teachers should be present at 9.45 a. m., welcome students or visitors as they enter with a kind word, assign each pupil to the proper place.

Begin promptly at 10 a. m., call roll of officers and teachers, a song to be sung by entire school, appropriate prayer offered, then a second song, read minutes of previous Sabbath showing number of teachers and of pupils, by sex, and the subject taught in each class. Then should follow the administration of that sacred ordinance, the Sacrament of the Lord's Supper, during which the most profound

[1] Catechism for children, exhibiting the prominent doctrines of the Church of Jesus Christ of Latter-Day Saints. By Elder John Jaques, Salt Lake City, 1897.

silence should be maintained. If preferred, a few remarks may be made to the children as to the nature of the ordinance, and why they partake of it; appropriate hymns may be sung by the children or music rendered by the organist in a soft and reverential style.

Then students march to appropriate music of the organ to their places of study. The studies should be in accordance with wishes of the Union Board. About 11.30 * * * the school should reassemble, practice singing for ten minutes, and all partake of the spirit inspired by the closing exercises. When on the outside of the building the children should regard the ground as sacred, and not give way to boisterous and irreverent conduct, but should leave the grounds in an orderly manner.

Grading.—The process of assigning each pupil to the department best suited to his capacity and arranging the department so as to enable the pupils to progress by logical succession of studies is important and laborious, requiring excellent judgment and consideration on the part of officers and teachers. Age and yet more aptness and natural ability of the pupil are to be considered. While local conditions must modify the arrangements, speaking in a general way, each school should be graded into four departments where there are a sufficient number of pupils and proper facilities. * * * A separate room for each department is very desirable; but where there is but one room, it is found the best results follow the schools which have taken wires upon which are hung curtains and stretch them across the building, making three or four divisions—one for each grade; but it is well, where possible, to have the primary by itself. * * * Many schools are now operated with excellent results with but one room, divided as above suggested.

The primary grade should include the smaller children under, say, 8 years of age; first intermediate, from 8 to 12 years of age; second intermediate, from 12 to 16 years of age; and the higher department from 16 years of age and upward. These departments should not be subdivided into smaller classes, but kept as one and instructed as a whole by capable teachers (except where the classes are entirely too large). * * *

Teachers.—Over each of the four departments there should be a head teacher, with two or three good, faithful assistants, all laboring under the direct supervision of the superintendency, who, together with the teachers, should lay out a general plan for the whole school for six or nine months or a year.

One of the assistant teachers is expected to make the record of attendance without interruption of exercises conducted by some other person.

The suggestions as to the primary and first intermediate departments are in harmony with those general titles. The caution is given for the first intermediate that "little reading should be allowed in the class. Students should be encouraged to read and study their lessons at home."

The comments for the second intermediate touch an experience common to all Sunday-school work and familiar in the day schools.

Here the children are of such an age that they require careful attention. It is generally the children between these ages (12 to 16) that are hard to get into the Sabbath school. * * *

Over this critical period of mental growth the teachers should aim to lead the pupils by instructing them and inciting a love for truth and creating ennobling and high aspirations; by inducing them to read at home the lives of great and good men and women, and in the class room to recite or put in the form of an essay and read the results of their home reading; by appointing certain ones to

give brief lectures on interesting and useful subjects; by requesting certain others to look up certain questions; by gem thoughts and any other legitimate exercise, all connected with the lesson, should the teacher labor to create a love and desire for the right and for Sunday-school work. * * *

If the pupils of this age can be encouraged to love and attend Sabbath school until this critical period is passed, great good will have been accomplished, the Sabbath-school work will be enhanced, and the pupils placed on a solid foundation from which they will not be likely to fall.

The higher department is to include all over 16 years of age.

The teachers for this department should be men and women well matured in judgment and devoted to a conscientious performance of their work. The students here are supposed to have an understanding of the first principles of the gospel, and should be able to give consistent reasons for their position, quoting references, authority, etc.

Special lines of the principles of theology should now be taken up and followed to their legitimate ends before others are handled. * * * All lessons and references should be prepared at home. Reciting should be the exercise, rather than reading round and round, as in the past. Lectures on the subject of the course should be given by different students, and the teacher should do little talking. Questions and answers should be allowed and freedom in discussing the principles of the gospel should be encouraged. * * * Should teachers for other departments be needed, this is the place to select them.

We believe if these instructions are followed out by every Sabbath school that a better class of work will be done. The condition of the schools will be materially advanced, and the moral and religious growth of the children will become a portion of their very beings.

The following extracts[1] have a suggestive interest throughout the country:

Highest department.—Composed of teachers and also those who have passed a successful examination in the other departments.

Studies.—The course of study in the department should be full and comprehensive and should be classified and arranged methodically, each study following another in proper order and sequence, after the following suggestive plan:

First. The Messianic Dispensation of the Gospel, including the three years' ministry and work of the Saviour.

Second. The history of the church the first century after the death of our Saviour.

Third. The Apostacy and the Dark Ages which followed.

Fourth. The Reformation, with a brief but clear outline of the work done by Wycliffe, Luther, Melanchthon, Zwingli, Calvin, Knox, Cranmer, and others, and its effect upon the world.

Fifth. The Restoration of the Gospel in its fullness by an angel to the Prophet Joseph Smith; the prediction of Prophets concerning the latter-day work and the great work of restoration and redemption to be wrought therein. * * *

As infidelity is now growing and spreading to such an alarming extent throughout the Christian world, and as the ability of the majority of believers to give a reasonable answer, aside from Scriptural evidences, of the faith within them is so exceptional, it is specially desirable that one of the leading studies of the theological department should be a frequent and ample consideration of the evidences of

[1] Guide for officers and teachers of Sunday schools in the various stakes of Zion, Deseret Sunday School Union, Salt Lake City, 1893.

Deity, of Christianity, of the divinity of the Bible, Book of Mormon, etc., from such sources outside of the Scriptures as will arrest the attention of the indifferent and skeptical, and which will enable the students to satisfactorily answer the sophistries of the infidel and the cavil of the mocker. Nelson's Cause and Cure of Infidelity and Paley's Evidences of Christianity and Natural Theology are excellent works treating upon these subjects.

Text-books and books of reference.—Bible; Book of Mormon; Doctrine and Covenants; Outlines of Ecclesiastical History, by Elder E. H. Roberts; Voice of Warning; Key to Theology; Pearl of Great Price; Compendium; Orson Pratt's works; Mosheim's Ecclesiastical History; Eusebius's Ecclesiastical History; Dictionary of the Book of Mormon.

For lower grades of Sunday schools some of the same books are recommended in the same "guide," and the following in addition: Oxford Teachers' Bible; Books of Mormon Charts; Moral Stories; Gow's Primer of Politeness; Simple Bible Stories; Story of the Book of Mormon; Catechism Cards on Manners; the Word of Wisdom and the Ten Commandments; Sunday school leaflets; New Testament; Faith Promoting Series; Preceptor.

The report shows that approximately two-fifths of the pupils are in the primary department and one-fifth in each of the other departments. It is estimated that the total enrollment includes about one-third of the entire church population. The numbers given are as follows:

Sunday schools, Latter-Day Saints.

States.	Schools.	Officers and teachers.	Pupils.
Wyoming	9	136	763
Colorado	9	104	1,008
Arizona	35	537	3,128
Utah	413	7,301	63,906
California	3	14	85
Idaho	122	1,852	12,077
Indian Territory	5	14	75
Eastern States	2	7	46
Northern States	6	29	123
Southern States	27	143	599
The United States	631	10,137	81,903

UNITARIAN SUNDAY SCHOOLS.

In the (Congregational) Unitarian churches, in addition to classes organized after a customary plan for study of the Bible, certain special classes may be found, as, for example, the following for persons above 16 years of age in a church of Boston, Mass.: First, the "Citizenship class" of gentlemen and ladies who wish to study the methods and principles of our Government; second, "How our part of the world was made," involving the elements of the geology of the neighborhood.[1]

The report of the Unitarian Sunday School Society for 1896 gives

[1] Christian Register, October 23, 1896.

a list of 189 contributing churches and Sunday schools distributed by States as follows:

Maine, 7; New Hampshire, 11; Vermont, 1; Massachusetts, 128; Rhode Island, 3; Connecticut, 3; New York, 6; Pennsylvania, 3; Delaware, 1; Maryland, 1; Virginia, 1; South Carolina, 1; Ohio, 2; Kentucky, 1; Illinois, 2; Michigan, 2; Wisconsin, 2; Iowa, 1; Kansas, 1; Montana, 1; California, 3. This but partially represents the organizations of the denomination. The numbers enrolled are not given.

CONSOLIDATION OF ALL REPORTS OF ATTENDANCE OBTAINED FOR SUNDAY SCHOOLS.

The complete statistics of Sunday schools do not appear ever to have been satisfactorily gathered. The attempts to gather them in the census produced no results accessible to the public, although a great amount of labor was expended, especially in the Tenth Census. The lack of accurate records in many cases and the vast amount of volunteer service of a casual sort is a hindrance to the precision of returns.

The Protestant ecclesiastical bodies generally include Sunday school returns in their yearbooks; but, as there will be occasion to observe, their methods of tabulation vary so that a summary for the country is not readily made from the separate reports.[1]

The following statement represents in a general way the total number of scholars derived from all reports accessible:

Scholars reported in Sunday schools, 1895.

In schools reported by the International Sunday School Convention	10,893,523
In Hebrew Sunday schools	13,506
In Latter-Day Saints Sunday schools	81,903
In Roman Catholic Sunday schools (estimated)	1,500,000

This indicates something like 12,500,000 scholars in Sunday schools of all qualities and degrees of excellence.

SUNDAY SCHOOL LIBRARIES.

The publishing houses of the great denominations have catalogues of books intended for Sunday school libraries, especially within their own constituency. As an aid to those who have limited means for purchase and care and limited experience in selection, it is common for publishers of books intended for Sunday schools to prepare sets that may be purchased complete in uniform sizes and bindings, often included in boxes to serve as bookcases in the schools. These vary from $5 upward in cash and from 25 volumes upward in books. The library sometimes assumes a great importance in connection with the

[1] See note at end of report on Sunday schools.

Sunday school, becoming a circulating library of sufficient consequence to be kept accessible on one or more days between Sundays. Some schools maintain reference libraries containing the standard church histories, Bible dictionaries, and commentaries. Where a school has funds at command, a suitable place for housing the library, and a membership of readers, the library may grow to require the fullest professional care in selection and administration.

The condition of Sunday school libraries has provoked considerable comment within recent months. Without entering upon the adverse and defensive statements put forth, the following paragraph is quoted for a view of the situation as it appears to officers of the oldest society in this country, prominent in the supply of such libraries:[1]

> The diversity of opinion respecting books suitable to be placed in Sunday school libraries has become more marked during the past year. This diversity tends toward two extremes—one admitting all sorts of literary works popularly designated as "standard and current literature," the other admitting only that which is intended to explain and enforce Biblical passages, and which is studied in the Sunday school classes. Hence there is a marked increase in the tendency of Sunday schools to fill their libraries with the common, cheap works of history, science, philosophy, and fiction, which make no pretense of containing the truths of the gospel, and not unfrequently make covert attacks upon religion, or have an undertone of antagonism to the gospel as old fashioned and quite out of date. This disposition to "bait the worldly" by secularizing the Sunday school library has caused some schools to throw out the library altogether, lest its influence should become satanic rather than saving. In both these ways the circulation of works of a decidedly religious type through the Sunday school has been diminished.

In some schools there is a regular system of maintenance, occasionally by endowment, and books that have possessed local usefulness are placed where some one may yet find value in them. The plan of the New York Yearly Meeting of Friends (Hicksite) for furnishing "traveling libraries" of selected books to be exchanged among country schools, already mentioned under Friends, has a suggestion of well-guarded selection, large privilege, and wide usefulness at a moderate cost. Lack of means, want of facilities for care, and other contingencies limit the possibilities of libraries in greater or less degree. Some schools make large use of children's papers to supplement libraries in the circulation of reading matter, and in some cases the papers alone are used. While varying considerably in excellence, these papers often have pictorial illustrations that are prized by children, especially by those who have scanty literary help from other sources. Few denominations have records showing the number of Sunday-school libraries or the number of books therein. The Hicksite Friends report 107 libraries, with 30,937 volumes; the Presbyterian Church in the United States of America, 939,587 volumes; the Latter Day Saints, 50,067 volumes in Sunday-school libraries.

[1] The Seventy-second Annual Report of the American Sunday School Union, 1896, pp. 9, 10.

The following is a partial list of children's or youth's papers, marked w, for weekly; m, monthly; f, fortnightly; sm, semimonthly:

Baptist.—Our Little Ones, w; Young Reaper, m; Sunlight, f; Our Young People, w; Our Boys and Girls, w; Barnens Tidning (Swedish), w; Child's Gem, w; Der Jugend Herald, m; Kind Words, w, f, m.

Christian.—Sunday School Evangelist, w; Our Young Folks, w; Little Ones, w; Pure Words, w.

Congregational.—Wellspring, w; Mayflower, w; Little Pilgrim, w.

Evangelical Association.—Sunday School Messenger, w, sm, m; Der Christliche Kinderfreund, w, sm, m; Das Evangelische Magazin, m; My Lesson, w; Laemmerwerde, w; Der Evangelische Kinderfreund, m.

Evangelical Lutheran.—Sunday School Herald, m; Little Ones, w; Kinderfreund, m; Busy Bee, m; Child's Paper, m.

Friends.—Our Youth's Friend, m; Olive Leaf, m; Try, Try Again, m.

German Evangelical Protestant Church of North America.—Der Christliche Jugendfreund, w, sm.

German Evangelical Synods of North America.—Christliche Kinder-Zeitung, m; Deutsch-Amerikanischer Jugendfreund, m; Unsere Kleinen, sm.

Latter-Day Saints.—Christian World, sm.

Methodist Episcopal.—Sunday School Journal, m; Sunday School Advocate, w; Sunday School Bell (German), m; Sunday School Banneret (Swedish), m; Classmate, f; Little Missionary, m.

Methodist Episcopal, South.—Our Little People, w; Sunday School Visitor, w, sm, m.

Methodist Protestant.—Our Morning Guide, w; Our Children, w.

New Church.—Sower, w (October–June).

Presbyterian.—Forward, sm; Morning Star, sm; Sunday School Visitor, sm; Sunbeam, w.

Protestant Episcopal.—American Church Sunday School Magazine, m; Shepherd's Arms, w, m; Young Christian Soldier, w, m.

Roman Catholic.—Annals of the Holy Childhood, bi m; same, German; Chimes, w; Little Crusader, w; Katholische Jugendfreund, m (German and English); Angelus, w; Pritel Ditek (Bohemian), w; Przyjaciel Dzieci (Polish), w.

Unitarian.—Every Other Sunday.

United Brethren in Christ.—Children's Friend, sm; Missionary Visitor, sm; Der Jugend-Pilger, sm; Lessons for the Little Ones, w.

United Evangelical Church.—Evangelical Little Folks, w; Sunday School Evangelical, m, sm; Missionary Evangelical, m; Bright Jewels, m; Jugend Freund, sm.

Universalist.—The Myrtle, w.

Undenominational.—(W. A. Wilde & Co.) Our Sunday Afternoon, w; Children's Hour, w. (American Sunday School Union.) Young People's Paper, w; Picture World for Little People, w; Little People's Lesson Pictures, w.

SUMMARY.

The conditions of Hebrew Sunday schools have a special interest as among those whose ancient faith is a substructure upon which the belief of all who accept the Christian Scriptures rests. The Roman Catholic schools have a direct interest as traceable to the opening of the Christian era. A like interest attaches to the plans for religious education by Comenius, the great teacher of the Moravian Brethren, who claim to be a part of the original church. The schools of the Lutherans have an interest as representing in some degree the spirit

of those who left the Roman Catholic Church as reformers and who have become the Protestant denominations of our day. The Friends, in certain yearly meetings, show noteworthy attention to home training. The work of the International Sunday School Convention represents a large part of the effort of great denominations. The schools of the Latter Day Saints form part of the history of a remarkable religious movement wholly within the memory of living men as illustrating methods of propagating belief. Widely different as these groups and others in our country are in many respects, all have some community of belief and of purpose. Even if one or another is deemed to hold to error, any success it seems to gain is suggestive to the person who would teach a different faith, in so far as it leads to a careful examination of the relative value of the means employed in education.

The Sabbath school as a place of religious instruction dates from the original observance of the Sabbath by families.

Fundamentally, religious instruction is a parental or family duty. In association of families into communities this duty has been more or less assumed by the unit of organization, the church or the state.

While the periodicals of the day give greatest prominence to the international selection of lessons and the international organization is the chief agency for gathering statistics of Sunday schools, it must be recognized that some prominent educators do not indorse it, and even in the recent International Sunday School Convention criticism was made regarding the methods of selections and use.

Without entering upon discussion of the comparative merits of different lesson schemes, it is for historical accuracy to mention that there are whole denominations that do not use the international lesson; individual schools in other denominations and individual classes in numerous schools pursue courses laid out for their own special circumstances; other systems claim a large body of adherents for their advantages over the international series. The international committee has under consideration such modification of its plans that absolute uniformity of the Scripture lessons for all classes with gradation of limited methods of presentation will cease to be a peculiarity. A system that has gained large following has, as a prominent feature, gradation in the fundamental matter, the Scripture selections, as well as in the mode of presentation. Moreover, in the early years of international lessons little attention was paid to the church year whose special appointments have prominent consideration in certain great denominations. Latterly there has been a growing recognition of Christmas, Easter, and other church anniversaries in the international lessons to make them more widely acceptable.

The Hebrew school described by Mr. Ellis as cited, the plans of the Latter Day Saints, as cited under the subtitle Teachers, have a single responsible teacher for a department of the school, with such assistants as may be needed for seconding directions, attending to records,

and other incidental details. The same plan is occasionally successfully followed, especially with juvenile classes, in other schools.

The Lutheran congregations generally have catechetical classes in addition to the Sunday-school instruction for some months previous to Easter, preparatory to confirmation. The Protestant Episcopal churches have a similar custom. Many churches of Presbyterian connection have systematic instruction in the catechism in connection with the Sunday school or in addition to it. Other denominations make more or less use of catechisms. The Roman Catholic Church has special courses preparatory to confirmation.

Schools in austere climates, as on the Dakota prairies, must close often by reason of the severity of weather, and many are suspended for some weeks of the winter. In some of our great cities in warmer latitudes are schools that close even as long as three months for summer vacation by reason of heat and the absence of members from their city homes. These suspensions must break the continuity of series of lessons worked out for each Sunday of the year. Many make still further interruptions to systematic instruction for several special occasions of the year.

The case of the Sunday school as a pioneer or mission enterprise varies somewhat from that of a Sunday school as one of the services of a well-established congregation. It serves as a nucleus for the best effort for improvement to a degree unknown in churches or in neighborhoods equipped with all the facilities of prosperous modern societies.

[NOTE ON THE TABLES OF SUNDAY SCHOOLS.—One who has followed the report on Sunday schools carefully will have observed unsatisfactory elements in the figures given. No matter what subject is under investigation, if the facts required pertain to a period prior to the time of investigation, accurate records are essential to give an accurate showing. No visitor of a school can tell its attendance of a previous week or month or year except through records, and if they are wanting or imperfect no satisfactory summing up can be made. It would be well if there were a general agreement upon the facts to be recorded, which is hardly to be immediately expected, and yet it seems possible for great denominations, if not for national organizations, to agree within themselves what facts to make matters of fixed record.

Within the same denomination one subdivision will report "membership," which may include officers, teachers, and pupils, as "total enrollment" in certain other cases appears to do, or it may include only pupils, as is customary in public school records. Some Sunday schools report pupils and do not report teachers.

After all allowance for accidents befalling work ready for the press there seems to be in some quarters opportunity for more careful oversight of tabular work in manuscript and in proof. In one case the columns of a summary for scholars and for teachers were interchanged through a page, which attracted attention by the improbable showing, and was correctible by the detailed tables on which the summary was based. In another case, where the showing was improbable and there were no details given for verification, a letter to the editor of the tables secured a correction and statement that the error had not been previously noticed and it could not be determined how it occurred. Errors of ordinary addition are very common. This office has made the best use possible of the material available.

With improvements in records there can be improvement in tables based on those records, so that there is hope for betterment.

There have been eight international Sunday school conventions at intervals of three years. In the twenty-one years of the organization it is still uncertain what facts are covered by the international tables. The following extract is from a letter dated January 12, 1897, from M. D. Byers, international secretary, in reply to a letter of inquiry:

"There is some variation in the reports from the different States giving the statistics of Sunday schools. I believe that the First-day schools or Sabbath schools of the Friends and also the Universalist schools are included."

It is presumed that the secretary's belief is correct, and the schools of the Friends and the Universalists have been placed as included in the international tables, for which, however, the secretary stated in his letter of transmittal, the committee has no details.

In the effort to ascertain the limitations of the international tables the following statement was received:

"I have had some trouble in former years to exclude nonevangelical Sunday schools from the statistics, but I think that the St. Louis report may safely be regarded as strictly evangelical." Letter of E. Payson Porter, late secretary International Sunday School Association. The convention at St. Louis was held in 1893; hence the reference to the St. Louis report.

The imperfection of local record is evident to anyone who has attempted to investigate the subject.—J. H. B.]

CHAPTER X.

THE CURRICULUM OF THE LAND-GRANT COLLEGES.[1]

1. Report of the Committee on Entrance Requirements, Courses of Study, and Degrees, made to the Association of American Agricultural Colleges and Experiment Stations, November 10, 1896, by President Charles S. Murkland.
2. Report of the Section of College Work, by President J. E. Stubbs, chairman, November 10-12, 1896.
3. What Should be Taught in our Colleges of Agriculture? by President H. C. White.
4. Industrial Education, by President Charles S. Murkland.
5. Conservatism in Scientific Agriculture, by Prof. W. H. Jordan.

I.

REPORT OF COMMITTEE ON ENTRANCE REQUIREMENTS, COURSES OF STUDY, AND DEGREES, MADE TO THE ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS, NOVEMBER 10, 1896.

Your committee, appointed November, 1894, and continued with further instructions at the last annual meeting of this association, presents the following report:

ARTICLE I.

SECTION 1. Congress, in establishing and endowing the institutions known as the land-grant colleges, evidently intended that their work for the classes they were designed to benefit should be, as far as practicable, uniform in scope and character in the different States and Territories. It is inevitable, however, that this uniformity, desirable as it is, should be somewhat limited or conditioned by the environment of each college.

SEC. 2. The act of 1890, further endowing these colleges, points to their development along certain specified lines. In conformity with the spirit of this act, these institutions are constantly tending to become schools or institutes of technology. That they must be collegiate in scope is required by the law itself.

SEC. 3. The steadily increasing tendency to ignore and obliterate all State lines in scientific and educational work; the free intercourse in social and industrial life among the people of the several States, and, in consequence, the steadily broadening field of usefulness and activity open to the graduates of educational institutions; the association of the land-grant colleges into a national organization for the protection and promotion of their common interests; the increasing recognition by the National Government of the importance and promise of the work of these colleges—all these considerations make it desirable that the degree or degrees awarded by these colleges should represent work approximately uniform in character and scope; should be, in other words, degrees of such recognized value as to pass current, each the equivalent of the others, in any State or Territory.

SEC. 4. It is clearly recognized that the social and educational conditions prevailing in the several States make it impossible, for the present, to prescribe

[1] Compiled and edited by Mr. Wellford Addis, specialist for obtaining and collating information regarding colleges of agriculture and the mechanic arts.

uniform requirements for admission into the colleges of this class. In some States, for some time to come, concession must be made to the defective condition of the public school system. But it by no means follows that in making such concessions the colleges are prohibited from protecting their standards of work and graduation. These, by proper effort, may be maintained and made to conform in educational value to those of the colleges which are more happily situated. Moreover, a certain community of interest makes it the duty of each college to protect at the same time its own reputation for thorough educational work and the reputation of its sister institutions.

SEC. 5. The educational conditions prevailing in the United States make it impossible to require of students in schools of applied science or technology that their liberal training should be acquired in preparatory schools. These institutions, therefore, can not exclusively confine their attention to technical subjects. They must include in their courses for graduation certain elements of a liberal (or general) education.

SEC. 6. These considerations, thus briefly outlined, make it desirable that all colleges in membership with this association should unite in requiring for the bachelor's degree or degrees at least the following general studies:

Mathematics, at least through algebra, geometry, and trigonometry.

Physics and chemistry, with laboratory work in each.

English language and literature, at least two years' work.

Other languages (one, at least, modern), four years.

Mental science, and logic or moral science, one year.

Constitutional law.

Social, political, or economic science, one year.

SEC. 7. It is desirable, also, that the bachelor's degree or degrees should represent an approximate uniformity in the amount of work done in the several colleges. The conditions generally affecting these colleges are such that a greater amount of work is demanded of their students than is required in the colleges of longer standing and other traditions. In the judgment of your committee it is not too much to require the equivalent of fifteen hours per week of recitations and lectures, together with ten hours per week of laboratory work or practicums, including the time devoted to military science and drill. Upon this basis, the above-mentioned general studies should be assigned a relative importance approximately as follows:

	Hours.
Algebra	75
Geometry	40
Trigonometry	40
Physics	a 150
Chemistry	a 150
English	200
Modern languages	340
Psychology	60
Ethics or logic	40
Political economy	60
General history	80
Constitutional law	50
Total excluding laboratory work	1,135
Total	1,285

The total number of hours included in a four-years course, allowing 15 hours per week for 36 weeks, would be 2,160; with 10 hours laboratory work or practicums added, 3,600. In general terms, therefore, the foregoing general studies should comprise about two-fifths of the work required for a bachelor's degree.

SEC. 8. It is recommended that in the establishment and nomenclature of degrees the colleges should strictly observe the doctrine of parsimony, and that only the baccalaureate degree of bachelor of science be conferred for a technical course of four years.

Statement in the diploma that the degree is conferred for the accomplishment of the course in agriculture, engineering, chemistry, etc., would afford differentiation enough to distinguish the several varieties of the degree.

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a Including 75 hours laboratory work.

ARTICLE II.

ENTRANCE REQUIREMENTS.

SECTION 1. The difference in the character of the school systems, both public and private, of the several States is too great, in the opinion of the committee, to permit the formulation of rigid entrance requirements applicable to all the colleges having membership in this association.

SEC. 2. But the committee holds that it is advisable, as a beginning, to determine the requirements in a few subjects upon which it is possible for all the colleges to agree, and to recommend others, which, although too high at present for adoption by some of these institutions, may yet serve as a standard or goal toward which effort may be directed.

SEC. 3. As a standard series of entrance requirements, to be adopted as soon as possible, we recommend the following:

1. Physical geography.
2. United States history.
3. Arithmetic, including the metric system.
4. Algebra, to quadratics.
5. English grammar and composition, together with the English requirements of the New England Association.
6. Plane geometry.
7. One foreign langauge.
8. One of the natural sciences.
9. Ancient, general, or English history.

SEC. 4. From a careful examination of the catalogues we believe it to be practicable, either now or in the near future, for these institutions to unite in requiring as a minimum for admission to their lowest collegiate class:

1. Physical geography.
2. United States history.
3. Arithmetic, including the metric system.
4. Algebra, to quadratics.
5. English grammar and composition, together with the English requirements of the New England Association.

ARTICLE III.

We recommend that the conclusions embodied in this report be adopted as indicating essentially the position of this association; with the express declaration, however, that the association in adopting this report does not attempt to exercise any function other than an advisory one, and that any attempt to enforce an arbitrary uniformity would result in unmixed evil. These conclusions may be summed up as follows:

1. That two series of entrance requirements, a standard series and a minimum series, be approved by the association, and that the two series herein given be so approved.

2. That approximately 15 hours be devoted to recitations or lectures each week for 36 weeks each year; that 10 hours laboratory work or practicums be added.

3. That the list of studies given in section 7 of this report be included in every course leading to a bachelor's degree.

4. That the degree of bachelor of science be recognized as the standard degree conferred by the colleges of this association.

Respectfully submitted.

CHAS. S. MURKLAND.
ABRAM W. HARRIS.
GEO. W. ATHERTON.
J. M. MCBRYDE.
THOS. F. HUNT.

II.

REPORT OF THE SECTION ON COLLEGE WORK TO THE TENTH ANNUAL CONVENTION OF THE ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

By J. E. STUBBS, *Chairman.*

Mr. CHAIRMAN AND GENTLEMEN OF THE CONVENTION: Owing to the quite recent resignation of the chairman of the "Section on college work," I have been called, as vice-chairman, to perform his duties. Whatever of completeness and thoroughness may be lacking to this paper is due to the very limited time allotted to its preparation.

I invite your attention at first to a somewhat common incident. Imagine yourselves for the moment in the "library car" of the Union Pacific Express, east bound, on the evening of the 4th of November. For the most part, the occupants of the car are Western men of affairs, keen and practical. Conversation and discussion over the exciting news of election day have begun to grow weary, when suddenly new interest is aroused by the introduction of a fresh topic, namely, the kind of an education which should be given to farmers' sons. Two bright-minded men, one from Montana and the other from Colorado, affirm that there is too much of higher-education nonsense in the country; that one of the modern heresies is that of giving the so-called higher education to farmers and farmers' sons, who would do better for themselves and their country if they were content with a common-school education along with the practical discipline and training of the farm. This opinion is hailed by a chorus of approval, with the further observation that there is too much of football and of similar sports in the college education of to-day. The first protest against the views just set forth came from a young lawyer, I guess, of Wyoming, who charmed us by a prophetic vision of the possible Websters and Clays and Jacksons that might be lost to our country if the farmer boy should fail to realize his ambitious dreams of public life because of the repressive influences which restrict his education to the district school and his scientific training to the field and the stable.

This incident is worth noting for the reason that it expresses the views and convictions of very many men who are thoroughly practical, able, and successful in their own respective callings.

Being an interested listener to the discussion, I tried to formulate in my mind three propositions which, by way of answer, I should be willing to maintain:

First. That the higher education, so called, has become absolutely essential to the prosperity and welfare of those who choose agriculture as a business or a life calling. This holds true also with respect to industrial callings, such as engineering in its various branches and the higher class of commercial activities. If it be true that "the test of national welfare is the intelligence and prosperity of the farmer," then the colleges of agriculture and mechanic arts established by the Federal Government have been wisely established, and will cement more firmly the foundation of the national prosperity and honor. Our practical mining friends of the discussion have simply failed, like many others, to give the due weight to the remarkable changes which have taken place in the industrial training and education of youth. The technical schools and the schools of applied science in colleges and universities have taken the place of the shop and the foundry of our fathers' time, and partly, too, of the farm, in the industrial education of this country and of other countries as well. These institutions for higher education, these colleges of agriculture and mechanic arts, now stand at the end of the Appian Way, to eager feet the noblest gateway to the Eternal City of industrial and commercial prosperity, as well as to political peace and supremacy.

On the other hand, the lawyer from Wyoming has failed to grasp the truth that there are other lines of education than the accepted type of classical education

which, while giving wide range of choice to special taste and aptitude, is both broad and liberalizing, and gives development and culture to the man, while training him in the particular disciplines which fit him for the successful pursuit of industrial and commercial callings.

If, according to Dr. W. T. Harris, United States Commissioner of Education, "urban life is the life of the future and of the highest civilization," one or the other of two effects must follow in the future life and growth of this country. Either our soil will be tilled by tenants for the benefit of the landowner who resides in town or city, giving thereby encouragement to the growth of two distinct classes—the one a poor, dependent peasantry, the other an intelligent but selfish and unpatriotic class of absentee landlords—or we must cherish and develop in our schools and colleges that kind of training and culture which shall build up an intelligent, prosperous, and independent class of farmers and artisans, each of whom owns his own home, tills his own fields, markets his own products, helps to regulate the affairs of his own township, sits in the councils of his own State or of the nation, in character, in intellectual, and in social qualities the peer of lawyer, capitalist, or priest.

Second. That the interest in athletic field sports, such as football, baseball, and tennis, in our colleges, though but incidental to the life and work of these institutions, has nevertheless an ethical, and thereby educational, value which is worthy of high regard.

The college president who keeps in view the highest character development of his students knows full well that the athletic exercises which have become, and which will remain, a striking feature of college life do, when properly guided and guarded, displace to a considerable degree the pernicious practices that spring into action when any body of young people are brought together in common association, and do further promote the cultivation and attainment of the better qualities of personal character—such, for example, as courage, obedience, endurance, and regard for personal honor. The gymnasium of Germany and the public school of England offer a strong contrast in this matter of school and college field sports, but the free and vigorous activity of Eton's football or cricket field is superior from every point of view to the rigid and systematic ordering of the daily exercise of the German gymnasium boy and to the dueling practice and drinking habits of the university student. The truth is that the outdoor life and the field sports, which have grown so rapidly into favor with American colleges, not only with the colleges for young men but also with those for young women, may be so guided as to promote a higher average of scholarship, good habits, perfect health, yea, a graceful type of womanhood as well as a sturdy type of manhood.

Third. That in the correlation of the subjects of instruction and discipline according to accepted pedagogic principles in the courses of study offered by the colleges of agriculture and mechanic arts, it will be found that the particular subjects in mathematics and in pure and applied science are carefully harmonized with those general subjects in language and literature, in the social sciences, and in history and philosophy, which pertain to the college courses usually denominated liberal.

As bearing upon this point, I quote the views of Prof. E. W. Hilgard, of the University of California, as given to me very recently in a personal letter. He speaks of the course in agriculture given by the University of California as follows: "With the average preparation we can command in this State, we find it necessary to devote the first two years of four substantially to the preparatory sciences and general culture studies, while the last two are given to the technical studies chiefly, though not exclusively. Among these elections should always be allowed, enabling the student to put special weight upon those branches that will be of chief importance to him in after life. We do not as yet in this country aim to educate all-around agricultural experts. There is too little demand for them;

and when the demand arises, the degree and kind of preparation is likely to have been changed by the introduction of agricultural science into the preparatory school. Then only will it be possible to establish a uniform course for the degree of bachelor of agriculture that will hold good all around. It makes a wide difference, too, whether the student comes from the farm or from the city. The latter clearly requires a different course, especially as regards practical studies, from the boy who has grown up on the farm and merely needs to give the explanation, as it were, of the practices he is already familiar with. An all-round agricultural expert can not, with our usual preparation, be turned out in four years. Agricultural science is the most complex of all, embracing as it does all the sciences from mathematics through physics, chemistry, both inorganic and organic, mineralogy and geology, botany, zoology, both theoretical and technical, vegetable and animal physiology, plus a certain amount of engineering. Unless a man specializes, the field is two wide to be covered in four years with any degree of thoroughness. For the present, then, we must leave the way open to specialization after a certain amount of general training, the time for which varies constantly with the conditions of the public and the preparatory schools."

Again, touching further upon the preparation and character of technical work in the course of agriculture leading to the degree of bachelor of science, Prof. Thomas F. Hunt, dean of the College of Agriculture of the Ohio State University, writes to me as follows:

"In a general way, I would say that the four-years' course in agriculture leading to the degree of bachelor of science should consist of one-third technical work of applied science, one-third science, and one-third language, history, and philosophical studies. It is of course difficult to classify studies precisely into the three groups mentioned, but in a general way I think we all understand it. On this basis our course at the Ohio State University, requiring 206 hours for graduation, contains the following technical work:

	Hours.
Agriculture	36
Agricultural chemistry	20
Horticulture	8
Veterinary medicine	15
Economic entomology	5

a total of 84 hours. Of the 206 hours, it is to be noticed further that 30 hours are elective, and that these may or may not be technical. But, disregarding the number of elective hours, we require 84 hours which may be fairly termed technical. This gives rather more than one-third technical work, and perhaps this is a little heavy."

It is to be observed that the 206 hours at the Ohio State University represents a fraction more than 17 hours a week for 12 terms. The proportion of technical work in the course outlined by Professor Hunt, even if we credit the 30 hours of election to technical subjects, and thus establish a course which represents the maximum number of hours to technical discipline, allows ample room for such cultural and social studies as will stamp the course with the character of giving a liberal education to its students.

It may be observed further that the acquaintance with the general truths of science which these technical subjects give will be of great service in the rational interpretation of all social phenomena, and we may therefore credit the technical studies with a definite value in respect to the kind of knowledge "which is of most worth.'

ENTRANCE REQUIREMENTS.

One of the most important subjects at present engaging the attention of the association is that which pertains to the requirements in branches of study that shall be established for admission to the freshman class of the colleges of agricul-

ture and mechanic arts, the extent and variety of the courses of study to be offered, and the academic degrees which shall be bestowed.

The deep and widespread interest in this subject is in evidence by the appointment, two years since, of a committee from this association, by the report of the committee of ten on secondary school studies and the report of the committee of fifteen on elementary education, both to the National Education Association, and also the report on the subject of entrance requirements by the Society for the Promotion of Engineering Education. Further, the appointment of a standing committee of five members from this association whose duty it shall be to report annually upon the best methods used in the various colleges and universities in the United States and in Europe for the instruction of students in the practical and scientific facts relating to agriculture, with the view to bringing instruction in agriculture into pedagogic form, gives additional emphasis to the importance of the matter of entrance requirements, and also the earnest purpose of the promoters of scientific and industrial education to put their subjects and methods into scientific form and relations.

I submit herewith the results of a brief study of the facts as they bear upon the present standard of requirement for admission to the freshman class of the colleges and universities that have membership in this association. The questions which I submitted to the colleges, bearing upon the questions of entrance requirements, were intended to be specific and easily answered. I have received no replies to my letters from Utah and North Carolina.

Out of forty-six colleges reporting, thirty have preparatory departments; sixteen have no subfreshman classes. In these preparatory schools, ten colleges have a one-year course; eight have a two-years' course; six have a three-years' course; one has a four-years' course; five are indefinite, merely reporting a subfreshman class.

SPECIFIC SUBJECTS.

English.—Eighteen colleges have the standard high-school requirements in English language and literature for admission to the freshman year. Twenty-eight colleges require that which represents the work accomplished in the eighth or ninth grade of the public schools.

Arithmetic.—Thirty-eight colleges require this subject to be completed. Eight colleges require the subject as far as interest and proportion.

Algebra.—Thirty-four colleges require algebra to or through quadratic equations. Four require the academic algebra to be finished. Eight do not ask for algebra.

Geometry.—Five colleges ask all of plane and solid geometry. Eleven colleges require all of plane geometry. Four colleges require from two to four books of plane geometry. Twenty-six colleges do not place geometry upon the list of subjects for admission to the freshman year.

United States history.—All the colleges make history of the United States an entrance requirement. Thirteen colleges require also general history.

Physics.—Fifteen colleges require elementary physics with laboratory practice.

Chemistry.—Nine colleges require elementary chemistry with laboratory work.

Physiology.—Seventeen colleges require elementary physiology.

Botany.—Eight colleges require elementary botany with field practice.

French or German.—Eight colleges require a reading knowledge of French or German.

Latin.—Twenty colleges offer from one to three years of Latin in their preparatory schools, and several offer Greek.

The institutions which have no preparatory departments are chiefly the universities in the wealthy and populous States where there are first-class high schools in all the cities and towns. In the newer and less populous States a well-equipped preparatory school of high-school grade, with courses of studies covering a period

of three or four years, is a necessity and will continue to be a necessity for very many years to come. The preparatory department is the means of supply to the college of many students who otherwise would never think of taking a college course.

It is evident, too, that the agricultural colleges divide themselves into two classes.

The one class receives the student into its freshman class from the eighth or ninth grade of the public school. The course in agriculture then becomes in the main a technical high-school course of study, with special reference to the farm and the farmer.

The other class of agricultural colleges requires the completion of a high-school course of study as a requisite for admission to its freshman class, and then seeks to maintain strong four-year courses in agriculture and in the applied-science courses, such as civil, electrical, mechanical, and mining engineering. In those States where the State university maintains strong schools of applied science and where the agricultural college is an entirely separate institution from the State university, it is evident that the college of agriculture and mechanic arts has found its field of work to be limited to giving a thoroughly practical training adapted to young men and young women who have finished such courses as are laid down in our best ungraded schools and best grammar schools.

The weight of opinion in this association seems to be that the colleges endowed by the Federal Government under the acts of 1862 and 1890 should be colleges according to the accepted standard in the best educational circles. I quote a paragraph from President Alvord's address, given at Denver last year, viz: "Institutions in affiliation with this association should in all respects be colleges in fact as well as in name."

NUMBER OF COURSES OFFERED.

In reply to the question, "How many four-year courses do you maintain?" I note the following: Ohio State University offers 15 courses; University of Washington, 14; Pennsylvania State College, 12; Maine State College, 9; California, Purdue, Kentucky State, Minnesota, Cornell, Virginia, and Wyoming, 7; Delaware, Idaho, Tennessee, and Wisconsin, 6; five colleges give 5 courses; eight colleges give 4; three colleges give 3, and fourteen colleges give 1 and 2 courses with numerous electives.

This general outline of the number of courses shows that the colleges of this association, even the weakest of them, are able to give a breadth and variety to their college work which is enjoyed only by the students of the oldest and best-known universities of this land.

The distinguishing feature of most all these courses of study is that they belong to the department of applied science. This is what differentiates them most strikingly from the average college of liberal arts. This it is that characterizes these colleges as the great schools for the industrial life of this country. This gives to us the great opportunity for training young men and women of high character and lofty ideals to become examples as well as leaders in the world's commercial and industrial activities.

All the colleges give courses in agriculture. Twenty-five have courses in civil engineering, twenty-two in mechanical engineering, twelve in electrical engineering, and five in mining engineering. Many of the mining States have a school of mines entirely separate from any other institution or in connection with the State university.

FEW STUDENTS IN AGRICULTURE.

But why so few students in the advanced agricultural courses? I think the answer is found in the conditions of agriculture at the present time; other depart-

ments of labor are more remunerative than that of farming. In many of the States there is not a ready market for agricultural products. In some States, at least, if not in all, the farmers themselves are not awake to the value of training in the agricultural college. In August last 85 boys, farmers' boys, entered the University of California, but not one entered the course in agriculture.

The 6 students who did enter the course of agriculture were from the cities. Yet it is wholesome to the thought and life of all our industries that agriculture be elevated to a worthy place in our system of college education. The comparatively few students who may complete these courses are worth to the country all their training costs, and when the time comes for the adjustment of the present unequal distribution of rewards of labor, the college-trained scientific farmer will be in patriotic demand.

All the colleges save eight are making special efforts to attract students to courses in agriculture. Addresses before farmers' institutes, lectures upon scientific topics, newspapers, bulletins, and contributions to newspapers are the principal means of bringing the work of the college to the notice and the esteem of the public.

MILITARY INSTRUCTION.

The department of military instruction in the colleges of this association is a subject I can not leave unnoticed. The military authorities have given particular attention to this subject from their point of view within the past two years. The Adjutant-General of the Army in his report for 1896 to the Secretary of War says: "The average number of students at the several institutions during the scholastic year was 3,401 less than during the preceding one, due perhaps to prevailing monetary depression. The number of those capable of military duty was, however, 3,009 more, and the number required to be enrolled as military students has increased 2,761. The aptitude and interest of these students under military instruction is generally satisfactory." The Adjutant-General further says: "The law authorizing details should be amended. I recommend that hereafter no detail be made to any institution that can not guarantee an enrollment of at least 150 military students, and that military professors at institutions having a less number in their military department be withdrawn and returned to their regiments."

If the recommendation of the Adjutant-General should become a law, the agricultural colleges of the following States would lose the detail of the military professor according to the report of last year under the head "Required enrolled as military students," viz: Colorado, Delaware, Florida, Georgia, Idaho, Louisiana, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, North Dakota, South Dakota, Oregon, Rhode Island, Tennessee, Utah, West Virginia, Washington, Wyoming; twenty colleges in all. Now, I venture to affirm that to strike these twenty States from the benefit of the military instruction provided for under the Morrill act would lose to the service much of the very best work that is done outside of West Point and the purely military schools. Take an illustration: I find that one of the leading Ohio colleges reports 997 students as capable of military duty. Of these 119 received military instruction and 77 were uniformed. It is evident from the above figures that the military spirit and military training does not abound in that institution. Furthermore, every college man knows that in the larger institutions of the East and middle West it is difficult to develop and maintain good military spirit and discipline. Now, compare this example with the Nevada State University that last year had at one time nearly 142 in the cadet battalion, that had an average attendance of 114 cadets, every one in uniform; every one required to perform his military duties regularly and strictly under the instruction of the commandant; theoretical instruction in the art and science of war given as a college requirement once a week to the cadets of the junior and senior classes of the university; one hour to drill every college day in

the week, save one, throughout the year, and the military department in favor with students and faculty. Now, what is true of the Nevada State University is true, I believe, with nearly all the colleges established under the Morrill act. The number of cadets in the Military Academy at West Point last year was 331. The recommendation of the Adjutant-General would put the minimum number of students in one of the colleges of this association to get the detail of an army officer at 150, but 15 less than the half of the total number at the United States Military Academy last year.

Again, in a recent article by Maj. Joseph E. Sanger, it is intimated that there is a decline in interest on the part of the officers of the colleges in the military department, that the instruction is not always up to the standard, and that in some faculties there is to be found positive opposition to the military department. I must say that I do not think these criticisms apply justly to many of the colleges. They ought not to apply to any. The provision for military instructions in the Morrill Act is a good provision, and should be welcomed by the administration of every college that enjoys the benefit of that act. "Whatever is worth doing at all is worth doing well" applies right here. It will be very easy, moreover, to remove any occasion for the above criticism.

To avoid any possible misunderstanding that the college faculty is not favorable to the department of military work, it should be understood that the military department is responsible, through its commandant, directly to the president of the college or university, and through him to the board of regents and trustees.

Again, the instruction in military science and tactics should be placed on the same footing with other subjects of instruction, and satisfactory work be required from every student who is a candidate for a degree.

A word may be said in respect to the kind of officer that should be detailed to college work. Not every officer is fitted by nature and training to become a successful college instructor. No officer who seeks an easy berth should be detailed to the college, but one who likes to work with young men, who is possessed of scholarly tastes and habits, who has a lofty ideal of the true soldier's character and life, and who, in cooperation with the president and faculty, infuses a worthy military spirit into the young men, and will aid in the development of a type of strong, self-reliant, loyal manhood which this country will ever need.

The union of military training with the development of the civic spirit in the education of our young men will dower this nation with a reserve corps of citizen soldiers unsurpassed in excellence by any age or in any land.

III.

WHAT SHOULD BE TAUGHT IN OUR COLLEGES OF AGRICULTURE?[1]

By Dr. H. C. WHITE, *President Georgia State College, University of Georgia.*

I am asked to discuss, in a short paper, the subject "What should be taught in our colleges of agriculture?" The use of the possessive pronoun in the title somewhat limits, or at least gives definiteness to the range of the discussion. The question, I take it, is not "What should be taught in a college of agriculture," but rather, "What should be taught in the colleges whose representatives are brought together in this association." The distinction is important in its bearing upon the discussion in hand. In order to determine what should be taught therein, it is proper to inquire what a "college of agriculture" is or should be. Assuming "agriculture" to be a distinct profession or pursuit in which men are to engage who are specifically and technically trained to that end, I can very well understand that there might be a college or school of agriculture as there are col-

[1] Read before the Association of American Agricultural Colleges and Experiment Stations, Washington, D. C., November 10, 1896.

leges or schools of medicine, law, theology, engineering, music, art, and other so-called "professions." In such event the college of agriculture, in determining what and how it should teach, could probably do no better than to follow closely the example set by these other professional schools in the character and scope of teaching which they offer and upon which they have determined after long years of experience and historic development. I think it may be truly said that the primary function of these schools is the teaching of the great body of rules of practice or procedure in the several professions, with incidental exposition of the scientific or dogmatic principles upon which the rules are based. It is acquiescence in these rules, indeed, which is "professed;" the recognition of their reasonableness and soundness which gives character to and uniformity in the tenets of the profession. Now, in order that such teaching may not be the mere inculcation of blind empiricism, these institutions take for granted (at least, the best of them do and all of them should) that their matriculates have already been educated; have had their stores of general information, their powers of observation and their faculties of reasoning already developed by the educative processes of the school, the academy, and the college.

Law, medicine, theology, etc., are "learned professions" not so much because the pursuit of them necessarily develops learning, but because, properly, only those should engage in them who are already learned in the sense that they are truly educated and so equipped that they are properly prepared to acquire increasing learning with increasing years. The schools which teach these professions are in fact (or should be) technical training schools in special lines. They are not truly, except incidentally, educational institutions at all. So, perhaps, should be a true "college of agriculture."

Now, I do not say that the practice of "agriculture" may not eventually be (or, indeed, is not now, for that matter) competent of exposition in a code of general rules of procedure such as those which are accepted as at the basis of the practice of law, medicine, or theology. But I think we must all admit, at least, that as yet these rules have not been framed to what our distinguished friend, Dr. Harris, so aptly characterizes as a "pedagogic form." As yet they have not been so systematized as to come within the province of the teacher. So long as this is true, in the sense which I have endeavored to convey, a genuine "college of agriculture" is, perhaps, without existence or the possibility thereof.

Undoubtedly it is extremely desirable that this great industrial art, the practice of which in these latter days has become, indeed, worthy to rank as a learned profession by reason of the manifold applications possible therein of the great stores of learning achieved in many of the branches of human investigation and research—particularly in the physical sciences—should speedily have its rules of procedure reduced to such form as will bring them within the legitimate domain of the "pedagogue"—he who "leads the children" to think and act aright in all the works of their heads and hands. We who form this association are, perhaps, of all men those most interested to that end. One object of this immediate discussion, no doubt, is to elicit an exchange of views upon that subject. Waiving this point for the moment, however, and turning to consideration of "our" colleges—what is it that should be taught in them?

As most clearly setting forth the objects and character of these institutions, I will be pardoned for quoting the familiar text of the laws establishing them. Each of them is a "college"—not an academy or a school; its function "to promote the liberal and practical education of the industrial classes;" its "leading object * * * to teach such branches of learning as are related to agriculture and the mechanic arts, * * * without excluding other scientific and classical studies, and including military tactics;" and each is under obligations to devote a portion of its revenues to giving "instruction in agriculture, the mechanic arts,

the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life." I quote the law in this discussion concerning what we should teach in our colleges, because where its requirements are specific we are bound as honest men to observe them. Were they all specific and explicit, there would be no need of this discussion. What we desire to arrive at is an interpretation of the general requirements of the law and a course of procedure which shall best fulfill its spirit and intent.

Dealing first, then, with the specific injunctions. Our institutions are to be educational establishments, not professional schools. They are to contribute to the drawing out and direction of the intellectual powers of the youth of the land—particularly of the "industrial classes"—so that they may be properly fitted by "liberal and practical" education to engage in "the several pursuits and professions in life." They are "colleges"—and this designation helps us to determination of the stage in the educational process where our work should properly and profitably begin. With the differing conditions surrounding the institutions in different localities, it is obvious that no fixed and uniform regulations can be laid down upon this point. The subject of entrance requirements to colleges generally—in what topics and to what degree—is engaging the earnest attention of foremost educators in associations similar to our own, and, for our colleges, of an able and learned committee of this body. Excellent ideals are set to which it is sincerely hoped we may all ultimately be enabled to attain, uniformly, in all parts of our common country. As yet, however, this is manifestly not practicable. Time may make it possible. So far as "our" institutions are concerned, I think we might properly and safely demand of applicants for admission thereto that they should exhibit the same or equivalent measure of intellectual development and acquirement (in "liberal" culture, at least) as is required by other collegiate institutions in the same or similar localities. Our teaching should begin at a corresponding stage.

While upon this point permit me to indulge in a few reflections of a general nature, which are yet pertinent to this discussion.

1. Obviously there is no warrant in law or reason for the distinctive designation of our colleges as "agricultural" or "mechanical." I think it a pity that the habit has grown among us. "Land-grant," or "State," or "science" would be more fitting appellations if distinctiveness is desired. "Agricultural experiment station" is an eminently proper name for our stations. It indicates just what they are. "Agricultural" or "mechanical" prefixed to our colleges is unwarranted, to say the least, and is apt to be misleading.

2. I think it unfortunate that the word "classes" occurs in the Federal act of endowment. There should be no "classes" known to the law in this Republic. Surely we should recognize none in the construction of our schemes of education.

3. If, as we believe (otherwise our professions are a deceit and our occupation a fraud), the proper, acceptable, and successful prosecution of the great industrial pursuits—agriculture, the mechanic arts, and other—demand an education and a degree of culture, both "liberal and practical," no whit less thorough and no lower in order than is required for engagement in other pursuits, we should take care that nothing which we set forth in the curricula of our colleges shall be a confession of the weakness of our faith or capable of construction into an admission that our education develops less worthy men, less able thinkers, less competent leaders of their fellows, or leads to less honorable or dignified pursuits than that which is furnished by other collegiate institutions.

We should never forget that our colleges are one important fruit of the memorable conflict, actively begun a half century ago and waged and won within our generation, between science and dogma, for the recognition of the study of the

physical sciences as a legitimate and necessary factor in genuine education. They were born of this conflict, the victory in which was a triumph of modern enlightenment over ancient narrowness, a decision that new elements should be introduced into our educative processes, not to supplant but to reenforce the old, that the two together might contribute to the formation of a completer man. The successors of the victors would woefully misapply the fruits of the victory if the institutions which they set up should deliberately embrace the very errors which were combated to give them life, and exhibit a narrowness and one-sidedness in their curricula which, although of opposite tendency, would be no less fatal to the development of the perfect man than those which in the older institutions were condemned. The laws creating our colleges not only permit us to guard against this danger; they enjoin us so to do. The provisions of the law are in accordance with the wise and reasonable views on the subject of education which guided the conflict referred to to its successful termination. Efficient hewers of wood and drawers of water and skilful artisans there were in abundance before the blessed enactment of 1862. This was not designed to add to their numbers or to perpetuate their guilds. It was intended to increase the learning of the youth of the land, to furnish them with intellectual powers and stores of knowledge especially applicable in the industrial pursuits, by providing liberally for education to that end, in order that those who might engage in such pursuits should no longer be mere slaves of a craft, but freemen in the intelligent prosecution of their chosen handiwork.

The specific subjects enjoined by the law to be taught are:

1. *Military tactics.*—As a lover of peace and of all agencies in the body politic which conduce thereto, I should be inclined, individually, to say—except for the physical training involved and because of the association—more's the pity; but, as we have it to do, let us do it thoroughly and well—not necessarily to the extent of placing our students under military discipline, which, personally, I deprecate for many cogent reasons, but as efficiently, consonant with its peculiar character, as we propose to instruct in other branches embraced in the curriculum.

2. *Agriculture and the mechanic arts.*—Let me waive discussion of these for the moment.

The nonspecific injunctions of the law are certainly general enough to weigh upon the conscience of no man who is a wise educator. They should be so, for, obviously, differing conditions in revenues, locality, character of students, and other will make necessary differences in the curricula of the colleges—both in the number of branches taught and in the relative importance assigned them. "Branches of learning related to agriculture and the mechanic arts," "without excluding other scientific and classical studies;" "the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life." Surely, so far as the letter of the law is concerned, the strictest constructionist could not assert that anything having the faintest shadow of a claim to be considered a branch of education might not be taught in our colleges. The great purpose of our colleges may be gatherd from both the letter and the spirit of the law. It is to furnish a "liberal and practical education," suitable for those who may be expected to engage in industrial pursuits. Without entering into discussion (which would be interminable) of what is or may be meant by the "liberal" and the "practical" in education, I think we all recognize that there are certain great groups of studies which differ somewhat in their educative purposes and methods, although their ultimate aim is the same, and it is not always easy to determine, for a given study, to which group it more particularly belongs; the one devoted mainly to redecraft, the other to handcraft; the one dealing mainly with the mind, the other with the sense; the one characterized sometimes as "literary," the other as "scientific." Both are necessary in judicious education.

Our colleges are called upon to furnish both, but this does not mean that they are to exhaust the field in either direction or to be uniform in the branches which they adopt, or in the relative importance they may assign them. I venture to say that, personally, I should consider certain branches as universally essential, each to be pursued to the extent commonly covered by a college course. These are: In redecraft, the English language and literature, mathematics, psychology; in handcraft, drawing and the physical sciences—physics, chemistry, and biology—with regular and ample laboratory work in each. To these fundamentals it is possible, and may be desirable, to make many additions on either hand. In redeculture, the classical and foreign languages, history, economics, moral science. In handculture, subdivisions of the physical sciences to any extent which may be practicable or desirable, mineralogy, geology, workshop mechanics, and the elements of technology in various lines. The pedagogic value of these differ with differing circumstances, and each college should carefully determine for itself those best suited to its special conditions. One thing, however, I think should constantly be borne in mind in the conduct of this, the truly educational work of the colleges. In teaching the "branches of learning related to agriculture and the mechanic arts" we should make it clearly appear that they are so related. In the liberal culture given by study of the masterpieces of our English tongue, for example, selections might readily and preferably be made to show that correct speaking and writing, a pleasing style in composition and expression, adherence to the rules of rhetoric, and even, perhaps, a touch of the breath of poetic inspiration are as becoming and necessary in one who speaks and writes of the industrial occupations of the people as of him who declaims of their rights and liberties upon the stump or discusses their political problems in the columns of the press. The evolution of civilization presented by the study of history may be as well, if not better shown by emphasizing the part played therein by peaceful industries as by recountal of battles and sieges and the lineages of kings. Patriotism may be inculcated no less through proper pride excited by the industrial achievements of our country in its times of peace than by panegyric of its glories won in times of war.

Illustrations necessary to demonstrate natural laws in science may be taken from the myriad examples furnished upon the farm, in the field, and in the workshop, which will serve at least equally as well the purposes of pure science as those arranged artificially in the laboratories or on the lecture table. Where differentiation is found possible, moreover, in the physical sciences, those branches should be selected which relate most directly to industrial pursuits, provided, always, that a proper pedagogic method is afforded and a genuine scientific spirit be maintained. Soil physics, agricultural chemistry, botany, entomology, and animal nutrition may serve for truly educative purposes as furnishing illustrations of principles in the study of the pure sciences, physics, chemistry, and biology. In fine, while it is not necessary nor is it proper that we should erect our colleges into unreasoning partisans of the industrial arts, as in antagonism with other pursuits, yet we should make manifest to our students by illustrations drawn therefrom in our educative processes, by the teachings of history, and by exhibition of their proper and legitimate fruits that through them lies a path to usefulness and happiness at least equal in stability and dignity to those offered by other occupations and professions.

So much for the educational work of our colleges. What shall we say to the injunction to teach "agriculture and the mechanic arts?" How far may we go, and in what manner, to make our colleges, in part, training schools in distinct pursuits? This, I take it, is the point of most interest in the present discussion. First, then, as to agriculture: While my opinions are merely tentative, and I can not be said to have yet reached positive convictions on the subject, but with a fair acquaintance of what is doing at home and abroad in this particular, I am inclined

to think that the school of agriculture should be a school of demonstration, not of attempted education.

The professor of agriculture (if there be one) should teach neither physics, nor chemistry, nor biology, nor engineering, nor any parts thereof, under the titles of soil physics, agricultural chemistry, stock breeding, farm surveying, and the like. He should rather demonstrate the applications of the previously taught principles of pure science in the operations of the farm. The school of agriculture should be provided with a suitable farm, including orchards, garden, and dairy, each equipped in the best manner possible, with proper buildings, stock, cattle, and machinery, and each should be conducted regularly and systematically as a model of its kind in illustration of the proper and best methods of actual practice in the several branches of agricultural industry. The students of the college should be admitted to witness, and, if need be, to take part in the operations, and the demonstrator in each should be competent and required to give explanation of the processes and the reasoning underlying them. It can readily be seen that the number of these processes may be very great, including preparation and tillage of land, drainage, irrigation, feeding and care of stock, breeding of cattle, vegetable and fruit culture, butter and cheese making, the housing, preparation, and marketing of farm products, and a great number of others. The point I particularly make is that these operations should be illustrative, and, in every case, performed in the very best manner that science and experience direct. The school of agriculture should be the clinic of the college; in a manner it should bear the same relation to the college that the hospital bears to the college of medicine. It should be designed primarily for those who have already received, or are at the same time receiving, the educative culture of the college proper, and it should not undertake to duplicate or infringe upon the pedagogic work of the college. This may seem unnecessary to say, but perhaps it is not so so long as it not infrequently happens that a "professor of agriculture" conceives it his duty to give lecture-room instruction to his classes in smatterings of botany, agricultural chemistry, vegetable and animal physiology, and other such topics which properly belong to the departments of the several special physical sciences, where they can be taught much better and with a proper regard to the period in the student's education where they should be introduced, and since most of our text-books on so-called "agriculture" follow the same general plan in their treatment of the subject.

Although certain of these topics may in strictness be considered of the nature of applied rather than of pure science, they are in the main such as should enter into the education of any man of liberal culture, and should not be estimated as the peculiar possession of those only who purpose entering the industrial pursuits. So far as the text-books are concerned, perhaps it is not possible to follow any other plan, since the practice of agriculture can only be taught by actual demonstration. When what they do is well done--as is the case in the admirable little manual of our friend Professor Voorhees--these books serve a most useful purpose, but should not be taken as exemplifying the course to be given by the professors of agriculture in our colleges.

Again, this illustrative work and training of the college farm and its attachments should be distinct from the research work, in its several lines, of the experiment station. It is unquestionably eminently advantageous and desirable that the station should be intimately associated with the college; particularly for the sake of the station, but for the sake of the college as well. For that matter an investigator in one might very well be (and preferably) a teacher in the other, and advanced or graduate students of the college might be admitted to participation in the researches of the station, but the work in each should be distinct, and, while they should cooperate and aid each other whenever possible, the distinctive purposes and functions of each should be carefully discriminated. In connection

Our colleges are called upon to furnish both, but this does not mean that they are to exhaust the field in either direction or to be uniform in the branches which they adopt, or in the relative importance they may assign them. I venture to say that, personally, I should consider certain branches as universally essential, each to be pursued to the extent commonly covered by a college course. These are: In redecraft, the English language and literature, mathematics, psychology; in handcraft, drawing and the physical sciences—physics, chemistry, and biology—with regular and ample laboratory work in each. To these fundamentals it is possible, and may be desirable, to make many additions on either hand. In redeculture, the classical and foreign languages, history, economics, moral science. In handculture, subdivisions of the physical sciences to any extent which may be practicable or desirable, mineralogy, geology, workshop mechanics, and the elements of technology in various lines. The pedagogic value of these differ with differing circumstances, and each college should carefully determine for itself those best suited to its special conditions. One thing, however, I think should constantly be borne in mind in the conduct of this, the truly educational work of the colleges. In teaching the "branches of learning related to agriculture and the mechanic arts" we should make it clearly appear that they are so related. In the liberal culture given by study of the masterpieces of our English tongue, for example, selections might readily and preferably be made to show that correct speaking and writing, a pleasing style in composition and expression, adherence to the rules of rhetoric, and even, perhaps, a touch of the breath of poetic inspiration are as becoming and necessary in one who speaks and writes of the industrial occupations of the people as of him who declaims of their rights and liberties upon the stump or discusses their political problems in the columns of the press. The evolution of civilization presented by the study of history may be as well, if not better shown by emphasizing the part played therein by peaceful industries as by recountal of battles and sieges and the lineages of kings. Patriotism may be inculcated no less through proper pride excited by the industrial achievements of our country in its times of peace than by panegyric of its glories won in times of war.

Illustrations necessary to demonstrate natural laws in science may be taken from the myriad examples furnished upon the farm, in the field, and in the workshop, which will serve at least equally as well the purposes of pure science as those arranged artificially in the laboratories or on the lecture table. Where differentiation is found possible, moreover, in the physical sciences, those branches should be selected which relate most directly to industrial pursuits, provided, always, that a proper pedagogic method is afforded and a genuine scientific spirit be maintained. Soil physics, agricultural chemistry, botany, entomology, and animal nutrition may serve for truly educative purposes as furnishing illustrations of principles in the study of the pure sciences, physics, chemistry, and biology. In fine, while it is not necessary nor is it proper that we should erect our colleges into unreasoning partisans of the industrial arts, as in antagonism with other pursuits, yet we should make manifest to our students by illustrations drawn therefrom in our educative processes, by the teachings of history, and by exhibition of their proper and legitimate fruits that through them lies a path to usefulness and happiness at least equal in stability and dignity to those offered by other occupations and professions.

So much for the educational work of our colleges. What shall we say to the injunction to teach "agriculture and the mechanic arts?" How far may we go, and in what manner, to make our colleges, in part, training schools in distinct pursuits? This, I take it, is the point of most interest in the present discussion. First, then, as to agriculture: While my opinions are merely tentative, and I can not be said to have yet reached positive convictions on the subject, but with a fair acquaintance of what is doing at home and abroad in this particular, I am inclined

to think that the school of agriculture should be a school of demonstration, not of attempted education.

The professor of agriculture (if there be one) should teach neither physics, nor chemistry, nor biology, nor engineering, nor any parts thereof, under the titles of soil physics, agricultural chemistry, stock breeding, farm surveying, and the like. He should rather demonstrate the applications of the previously taught principles of pure science in the operations of the farm. The school of agriculture should be provided with a suitable farm, including orchards, garden, and dairy, each equipped in the best manner possible, with proper buildings, stock, cattle, and machinery, and each should be conducted regularly and systematically as a model of its kind in illustration of the proper and best methods of actual practice in the several branches of agricultural industry. The students of the college should be admitted to witness, and, if need be, to take part in the operations, and the demonstrator in each should be competent and required to give explanation of the processes and the reasoning underlying them. It can readily be seen that the number of these processes may be very great, including preparation and tillage of land, drainage, irrigation, feeding and care of stock, breeding of cattle, vegetable and fruit culture, butter and cheese making, the housing, preparation, and marketing of farm products, and a great number of others. The point I particularly make is that these operations should be illustrative, and, in every case, performed in the very best manner that science and experience direct. The school of agriculture should be the clinic of the college; in a manner it should bear the same relation to the college that the hospital bears to the college of medicine. It should be designed primarily for those who have already received, or are at the same time receiving, the educative culture of the college proper, and it should not undertake to duplicate or infringe upon the pedagogic work of the college. This may seem unnecessary to say, but perhaps it is not so so long as it not infrequently happens that a "professor of agriculture" conceives it his duty to give lecture-room instruction to his classes in smatterings of botany, agricultural chemistry, vegetable and animal physiology, and other such topics which properly belong to the departments of the several special physical sciences, where they can be taught much better and with a proper regard to the period in the student's education where they should be introduced, and since most of our text-books on so-called "agriculture" follow the same general plan in their treatment of the subject.

Although certain of these topics may in strictness be considered of the nature of applied rather than of pure science, they are in the main such as should enter into the education of any man of liberal culture, and should not be estimated as the peculiar possession of those only who purpose entering the industrial pursuits. So far as the text-books are concerned, perhaps it is not possible to follow any other plan, since the practice of agriculture can only be taught by actual demonstration. When what they do is well done—as is the case in the admirable little manual of our friend Professor Voorhees—these books serve a most useful purpose, but should not be taken as exemplifying the course to be given by the professors of agriculture in our colleges.

Again, this illustrative work and training of the college farm and its attachments should be distinct from the research work, in its several lines, of the experiment station. It is unquestionably eminently advantageous and desirable that the station should be intimately associated with the college; particularly for the sake of the station, but for the sake of the college as well. For that matter an investigator in one might very well be (and preferably) a teacher in the other, and advanced or graduate students of the college might be admitted to participation in the researches of the station, but the work in each should be distinct, and, while they should cooperate and aid each other whenever possible, the distinctive purposes and functions of each should be carefully discriminated. In connection

with technical training in handcraft, instruction might properly be given in the school of agriculture in farm management and economics, in the history of agriculture in all its branches, and in the systematic and critical study of agricultural literature.

So much for agriculture. Instruction in the mechanic arts—into which subject I may not enter—I take it should follow the same general lines, the workshops taking the place of the farm.

Now, I am aware that I have mapped out an amount of work for our colleges which is stupendous; either the educative work or the illustrative work is alone very great; the entirety—to us of small means, especially—is simply appalling. It will rarely, perhaps never, happen that any one of our colleges can do it all. But I submit that it would be wise to follow the general policy which is herein outlined. Let each college do what it can and make its selection among the lines of work offered according to its means and the conditions surrounding it. Upon certain points I should be inclined to insist in all cases.

1. That our colleges should be colleges in fact as well as in name. They should be educational institutions in higher learning, in which the physical sciences particularly should fill their proper and important place as educative branches. They should be true colleges, requiring, on the one hand, of those admitted to them a certain proper degree of previous education, and on the other stopping short of the specialization in distinct branches which constitutes in pure sciences the proper work of the university, and, in certain of the applied sciences, of the experiment station.

2. That they should provide the necessary and proper amount of this educational work first of all, and should never permit themselves to become the nurseries of unlettered craftsmen in the industrial arts, however skillful. This need not necessarily exclude from certain of the technical courses those who are seeking information rather than education, but care should be taken that the chief function of the college is educational, not informational.

Where the land-grant college subsists exclusively upon its Federal revenues, it must, perforce, be modest in its aspirations. Should other collegiate institutions exist in the community with which it may cooperate, so that it may require of those admitted to it a previous reasonable degree of college education, then its work may legitimately be given over chiefly to the demonstrative teaching which I have indicated. Best of all, perhaps, is the arrangement, when it is feasible, of such intimate and local association with other collegiate institutions as will provide for the educative and leave the bulk of the revenues of the college available for the technical, demonstrative work. Such an arrangement as—my friend Professor Bailey will permit me to say—is so admirably administered at Cornell University in the State of New York, for example, certainly leaves nothing to be desired. I am quite well aware that "many men, many minds," and that an arrangement of a given character which might be admirable in one locality and under one set of conditions might not work well in another locality and under different circumstances. I am discussing the question purely from an ideal standpoint. In any event, whatever may be the conditions, redecraft (in its best and thorough signification) should precede, or at least accompany, handcraft, however thorough this may be. In no other way in my judgment can our colleges serve the great purpose for which they were founded—to make of the industrial pursuits intellectual occupations to be engaged in by educated men. Our colleges must give such good, genuine, broad education to their students as will equip them with mentality requisite to cope successfully with their fellows in the intellectual struggles of life or else they fail of their purpose, become a laughing stock of scholars and a hurt rather than a blessing to the community.

IV.

INDUSTRIAL EDUCATION.[1]

By Dr. C. S. MURKLAND,

President New Hampshire College of Agriculture and the Mechanic Arts.

MR. CHAIRMAN, MEMBERS OF THE MASSACHUSETTS BOARD OF AGRICULTURE, AND FRIENDS: It is with great pleasure that I avail myself of your permission to speak here to-day. It occurred to me while your chairman was speaking that undoubtedly one of the reasons why the New Hampshire College was moved nearer to your border was because of the strong attractive tendency of the State of Massachusetts, naturally drawing us by its educational energy; and I am very sure that all we in New Hampshire who are interested in education are delighted to get nearer Massachusetts, either locally or in spirit, in purpose and in method.

The necessity of condensing what I might wish to say in the time allotted me has compelled me to leave some important matters utterly unmentioned, and to briefly touch upon others, simply commenting upon a few points; for the subject of industrial education is not one which can be disposed of in a few words—it is a subject which touches vitally the interests of our people. Without further introduction, let me say:

It is the misfortune of educational movements that they have always to deal not only with the resistance of ultraconservatism, but also with the impatience of impetuous radicalism. On the one hand is the drag of objection, on the score that that which has been good enough before is good enough now; and on the other hand is the strain of insistance upon perfection, as if educational methods and results might spring forth fully developed, as Minerva was said to spring fully equipped from the head of Jove. One class of people clamors against anything largely new in educational methods and purposes, while another class clamors, with equal vehemence, for such development of the newer methods and such definition of the newer purposes as have been gained for the older education only by the experience of centuries. To clearly understand this double strain is to get at the heart of the difficulties in the way of industrial education, and to get at the heart of the difficulty is at the same time to gain an understanding of the position of industrial education, in this country as in other lands.

Industrial education, which may be defined as education having in view immediate application in some of the pursuits and professions of life, is at present involved in some necessary confusion in this country because of the difficulties it has met on either hand. It was inevitable that so great an innovation as that embodied in the changes from the traditional and time-honored methods of education should, for its definite development, require much more time than has yet elapsed since the first institution for industrial training was established. An expression used by Dr. William T. Harris, the United States Commissioner of Education, in a recent address, will be found useful in making this fact clear. In that address[2] he spoke of a "pedagogical form" as a necessity in teaching any subject. And by the phrase "pedagogical form" is meant a series of lessons so arranged that they shall be actually progressive. In mathematics, to use the illustration Dr. Harris himself used, there is a definite progression in which each lesson plainly follows the lesson before it and demands that the preceding lesson shall have been mastered. In mathematics and the classics the "pedagogical form" has been developed by long trial and is essentially fixed. There may be

[1] Read at the public winter meeting of the Massachusetts State Board of Agriculture, December 4, 1894.

[2] Before the American Association of Agricultural Colleges and Experiment Stations, Washington, D. C., November 14, 1894.

changes in text-books; it may be questioned whether or not Cæsar shall follow the lessons in easy Latin, the fables, and short historical extracts; but the teaching form is not thereby affected. One who has to teach mathematics has no difficulty in deciding which place in the course shall be held by analytical geometry, for instance. He has only to decide what text-book will best suit his classes by being best adapted to the requirements of the pedagogical form under the circumstances in which he finds those classes. The same is true of him who has to teach the classics, or even the modern languages.

In the matter of language the form is less definitely determined than in the case of mathematics, but it is still fairly well defined. It certainly is to be questioned whether or not there has been any improvement upon the system which simply took the "pedagogical form" used in teaching the classics and applied it to teaching the modern languages. The main fact, however, is clear; in the older education, represented by the teaching in the classical colleges, there has been the advantage derived from established forms, by which both the process and the result of the teaching have been essentially fixed.

Industrial education, on the other hand, has lacked this advantage; and, lacking this, it has lacked that which can be gained only through the experience of many years, and by the tentative trials of many institutions during these years. Industrial education in this country, as in Europe, is too young to have arrived at the maturity which will represent what such education is when at its best. And this which is true of industrial education in general is true of its different divisions. So that it is a thing to be expected that those departments of industrial education which lend themselves most readily to a teaching form should be most perfectly developed and therefore in the most satisfactory condition.

Mr. Carroll D. Wright, Commissioner of Labor, presented a report February 7, 1893, in which he adopted a classification separating industrial education into three divisions, respectively represented by the schools for manual training, the technical schools, and the institutes of technology. The "half-developed colleges of agriculture and the mechanics," as he calls them, he places between the technical or trade schools and the technological institutes of university grade, giving them, rightly enough, perhaps, an indefinite and rather nondescript position. Adopting, for convenience, his classification, it is to be noticed, first, that industrial education has been concerned with the mechanic arts and the manufacturing industries almost exclusively, until a very recent date. From the establishing of the Rensselaer Institute, at Troy, N. Y., in 1842, till to-day, engineering, in some of its divisions, has been the predominant department in the industrial institutions in the United States. Allied with mathematics as engineering always is, demanding a thorough preparation in mathematic instruction as it does, this department of industrial education has easily adopted the pedagogical form ready to its hand in the established form of mathematical teaching. In affording new details of application, engineering has not had to grapple with the difficulty of supplying or developing the form itself; it has found the form already prepared for its use.

This is something which should never be forgotten by those who are moved to speak or write upon this subject. It is easy enough, for instance, to complain that in the industrial or technical institutions of the country agriculture is overshadowed by mechanics. It ought to be easy to see that while this may be the case, while it is naturally, even necessarily, the case, it is so simply as a temporary phase of the general problem of industrial education. It is not that one department is held in higher regard than another. It is simply that one department found a teaching form ready to its use, while another faced, and faces still, the necessity of developing its own form. No one has advanced a form for teaching agriculture, for instance, so definite, so well arranged in progressive sequence, that it could be generally adopted as, on the whole, a satisfactory method for universal use. It may be safely prophesied that no one will suggest such a form for

some years to come. And the institutions in which agriculture is taught are thrown thereby into a confusion which is for the present practically inextricable. What requirements shall be demanded of the students who enter such institutions? How shall the studies apportioned to the successive years be determined? How long shall the prescribed course be? What degree shall be conferred upon completion of the course? These are questions which find answers as many as there are institutions involved. And this confusion can not be reduced to order until it is possible to apply to every department in such institutions some well-defined form of teaching, such that the progress in one department shall be as definite and as real as the allied progress in every other department.

I have singled out the department of agriculture for illustration for two reasons: First, because I assume that a session of the Massachusetts board of agriculture is interested chiefly in teaching agriculture; and, secondly, because the department of agriculture in our institutions of industrial education is the department which suffers most from the lack of definite form in teaching. The same considerations lead me, at this point, to dwell upon the relation between agriculture and other departments of industrial education.

We have always to consider the end to be attained in education. Few parents would be satisfied if their sons were to receive from the institution they attend nothing but the training which would prepare them for the mere drudgery of the occupation they choose. Wood-working and iron-working are included in the mechanical courses not simply that the students may be fitted to be carpenters and machinists; students must master preliminary details for the sake of larger constructive operations. A boy may learn the carpenter's trade by an apprenticeship of three years, and be paid for his work all the time. It would hardly pay him to go to a technical school for four years, meeting the necessary expenses out of his own pocket or out of the treasury of the State or the nation, only to gain such skill as he might be paid for acquiring in less time. A simple trade school, which attempts nothing but to produce skilled artisans, can justify its being only by turning out better workmen than the shop can turn out, or by reducing the time of apprenticeship, or by adding something which an apprentice would not learn. As a matter of fact, the technical schools of the lower grade do not attempt to reduce the term of apprenticeship, requiring, as they commonly do, more than three years' time. Nor do they, as a rule, claim to produce better artisans. A journeyman carpenter will not have spent over the construction of perfect joints so much time as the graduate of a trade school, but he will have gained much more in deftness and quick facility in the use of tools. On the whole, the journeyman carpenter who has served his apprenticeship will be a better carpenter for general work than the school graduate. It is not by giving the same instruction in a shorter time, nor yet in giving better instruction covering the same ground, that a technical school must show its superiority to the school of apprenticeship; but it is in adding to the mere technical training such other instruction as shall better equip the learner for his place among men. Industrial education must be more than learning and teaching trades; more, even, than adding to the development of technical skill a certain ability to apply general principles to the details of a handicraft. It must fit the learner for life—for the life a man must lead among men; and that is something more than the life a carpenter must lead among carpenters, or a machinist among machinists, or a farmer among farmers. This is vital in any consideration of the nature, the purposes, or the methods of industrial education. And until we have found how the technical institution may best fit its students for the large relations which they must sustain, always having in view the special vocation and also the general human obligations, we shall not have solved the problem of industrial education.

This has its immediate bearing upon the relation between agricultural and other departments of industrial education, and in this way: With such material for

teaching as is now available, there is no perspective possible in teaching agriculture. Arranging different courses of study in a general agricultural course is as nearly haphazard a process as anything can be in matters of instruction. Coming fresh from a convention of the so-called agricultural colleges of the country, I am sure of my ground when I say that this is a common fact in the experience of these institutions. Certain text-books may be assigned to the senior year in one of these colleges, with absolutely no reason why they should not have been assigned to the freshman year, or, for that matter, to some year of the preparatory school course. Where there is any perspective it is afforded by the dependence of agriculture upon some more definitely formulated scientific study, as in the cases where an understanding of elementary chemistry is involved. In other words, teaching agriculture gains the perspective of a pedagogical form only when it adopts the form determined by some more precisely formulated science; and where no such other science is involved there is nothing of that orderly sequence in the progress of the instruction which has made the classical education, and in some degree the scientific education, a process commanding respect by the intellectual development it inevitably implies.

I am anxious to make this clear, even at the risk of some repetition. Here are sixty so-called agricultural colleges, or thereabout, each attempting to give as complete instruction in agriculture as is possible, and I suppose everyone of them has to withstand the diverse strains of which I spoke at the outset; on the one hand the inertia of the sentiment which sneers at scientific farming, and on the other hand the strain of the foolish impatience of those who can not understand that until agriculture is reduced to a science it can not be taught as a science. Reduced to a science agriculture certainly has not been. It involves some smattering of scientific knowledge; mainly, as has been indicated, of elementary chemistry. But that farmers are able to speak of potash and phosphoric acid and nitrogen and albuminoids and carbohydrates, hopeful as this is as a promise for the future, is not a demonstration that agriculture itself is even approximating to the exactness of a natural science. It has hardly attempted to use the scientific method of careful and exact observation of facts with reference to large generalizations. How could it be otherwise? What inducement has there been for men to regard their farming in the light of a scientific possibility? The patient, painstaking accuracy, the willingness to wait long for apparently meager results, the disregard of immediate financial return—such qualities as these, all factors of the scientific spirit, have had little opportunity to exercise themselves in the details of tilling the soil. The wisdom of the National Government in establishing experiment stations has begun to afford such an opportunity, but only the veriest beginning can have been made in seven years, and the agriculturists themselves have hardly as yet been willing to unite with these stations in carrying out the work which demands such general cooperation. Until there is a science of agriculture, as there shall be some day, there can not be any satisfactory teaching of agriculture worthy of a college name or a collegiate degree, and the agricultural colleges may face the facts.

Again, if there were a well-defined science of agriculture, it would not in itself constitute a complete industrial education. We might, even now, do what some of the frequent contributors to the agricultural papers seem to demand, and give instruction beginning, say, with the method of cutting and carrying wood for the kitchen fire. Then we might proceed to show how to handle a shovel, a spade, a two-tined fork, and a four-tined one, and so on. But it is hardly probable that boys would go to a college, or whatever the institution might be called, to learn that which they are not too willing to practice at home, where they have at least board and washing and clothes furnished them. As in the case with trade schools, the agricultural college can justify its being, not by giving the training which might have been given on the home farm, nor yet by compressing that same train-

ing into fewer years, but by adding to it something which shall tend to make the student a better farmer, a better man, and a better citizen on his farm. It was profound wisdom which united the mechanic arts with agriculture in the fundamental law establishing the various colleges. Where there are institutions designed to be exclusively agricultural, as in Massachusetts, the same advantage is gained by broadening the course of study so that it shall embrace many branches which are general rather than technical. These studies benefit the agricultural course from the fact that they are not themselves agricultural. They make it possible for the student to gain that personal development which makes for general fitness rather than for special aptitude, and they also ally the more specifically agricultural studies with other studies which have a teaching form already fixed. It would be no benefit to agriculture if we could succeed in forcing an institution to cut out everything in its curriculum which is not directly and immediately technical. No more deadly blow could be struck at the agriculture of the future than would be struck if such a movement should be made universal or even general. Technical education as applied to agriculture is incomplete so far as it is exclusive. It needs, as other branches of technical education do not in the same degree, the help of other studies, technical or general; for, lacking the form of progressive sequence, it lacks the first educational requirement. It will not insure the general development of the pupil, nor will it even fit him for the profession of agriculture.

It may seem as if I had conceded too much in granting, as I have, that technical education as applied to agriculture is confused, immature, and not upon a level with other departments of technical education. But there is some hope in it, for there is nothing in the method of instruction in agriculture to prevent such reconstruction or such gradual improvement as may be suggested by longer experience. The name "agricultural college" is, I suppose, a designation which is likely to be permanent. But the agricultural colleges will never command the respect which other colleges command until they earn it. No decree, no legislation, certainly no declamation, will elevate the institution which is not exalted by its own worth. One of two things, and probably both of them, our agricultural colleges must do if they are not always to be considered, as many people now consider them, institutions where a partial education may be gained, an education distinctly lower, upon the whole, than that of the classical college. Either the agricultural college must produce men who are far on the road to eminence in their chosen specialty, or it must produce men able to maintain their places side by side with the bachelors of arts from other colleges. If the institution aims to produce eminent specialists, and only these, its constituency will be reduced to narrow limits; if it aims to send forth specialists, and at the same time to give as complete general development as any institution can give in the same time, there is no reason why the agricultural college may not have a constituency practically unlimited and win for its name genuine honor. So long as either agricultural or technical education is of greatest interest to us, we ought not to rest until the agricultural college is recognized as the equal of any college in the land.

There may be some points of detail which should not be entirely overlooked, for many questions arise, questions which must be answered somewhere, and which may not unfittingly be asked here. At what point shall the technical education, specifically that pertaining to agriculture, begin? What shall be accepted as sufficient for admission to the technical college, the college of agriculture, for instance? How long shall the course be? What kind of testimonial or degree shall be conferred at the end of the course? These are living questions, and will not soon be finally answered. But some suggestions, with principles back of them, may be made.

Naturally one begins with the last, for the end determines the beginning as truly as the beginning conditions the end. And, in the first place, there should

be no degree representing four years of college residence which can be regarded as of less worth, less honorable, than any other degree representing the same expenditure of time. If at the end of four years spent in one college there is a bachelor's degree conferred, making the bachelor of arts a person of rightful distinction, the agricultural college ought not to confer a degree which may be considered as less honorable as is the degree of bachelor of science. I think I hazard nothing in saying that the letters B. S. attached to a graduate's name do not carry so much weight as the letters B. A., and that is not so very much. This whole matter could be greatly simplified, and would be, if it were a settled principle that the degree of A. B. means that the one receiving it has, after a definite preparation, satisfactorily completed a four years' course of study in an institution of collegiate grade—it does not matter what the course, scientific, technical, or classical. This suggestion is not new, nor is it original with me; but I am convinced that it is correct in principle, and that if it should be applied to the so-called agricultural colleges it would be to the general benefit of industrial education, perhaps of all education.

But this assumes that the institution is of collegiate grade; and the grade of an institution is largely determined by the requirements of admission to it. We can not admit students with poor preparation or with no preparation at all, and with such material maintain a standard of scholarship worthy of the collegiate name. The question of the degree thus involves the question as to the length of the course and the question as to the requirements for admission. As to length of the course, it should not be less than four years, unless a shorter time—three years, for instance—be accepted in other institutions conferring the same degree and having the same requirements for admission.

President Eliot suggests that three years ought to be enough; but this is entirely a question as to the starting point. With a preparation covering a year's work more than is covered commonly by applicants for admission, the college course might be reduced to three years' time; but with preparation under the ordinary standards of Massachusetts, New Hampshire, and the other States of New England, it will take four years to produce the development of mind without which there ought to be no degree conferred, of A. B. or B. S. This does not mean, necessarily, that there must not be shorter courses, requiring less and giving less. But the degree should be the same for equivalent attainment in all institutions. In the department of agriculture it may be possible that a course of two years would appeal to many young men to whom a course of four years would seem like an impossibility. On the other hand, however, is the danger that a course of but two years, with a certificate, of course, not a degree, at the end of it, would tend to lower the standard of the institution, and thus indirectly defraud every graduate who has pursued the full course and thus become entitled to standing as a bachelor of arts. A short course in agriculture is an acknowledgment of the truth of which I have spoken—that in teaching agriculture there is no determined form of progressive sequence. It may also be a confession that the graduate in agriculture is not to be considered equal with the graduate in other departments. So far as this is the meaning of it, the short course is to be unqualifiedly condemned. In any case the question of preliminary requirements is involved. For the candidate for the short course is almost inevitably one who is not prepared for the full course; one, in other words, who belongs in a preparatory school, not in a college. The degree of A. B. should be given after satisfactory completion of the determined number of years' work, but with a definite preparation assumed in every case. What should the preparation be?

This is the practical difficulty in the way of industrial education. And it is to the honor of the Massachusetts Agricultural College that it is seeking to confer the greatest benefit upon its students, and thus to advance industrial education, by raising its standard and increasing the requirements for admission.

I wonder if you understand how much of the heroic there was in such action when President Goodell, together with the faculty and the trustees of that college, consented to raise the standard, at the risk of decreasing the numbers. It was a brave, honorable, manly thing for them to do; and honor will be done them for it as surely as truth is truth, as surely as God gives the final mastery to that which is right and perfect.

Three things ought to be demanded of every candidate for collegiate standing: A thorough preparatory training in mathematics, up to the point now commonly fixed upon by our colleges; a thorough training in English. (I wish I might show some of the English that we get, or, at least, some of the things that are supposed to be English, but are not. How can you give a college training, building up the vast superstructure, with no foundation? We ought to demand of our public schools more and more insistently that they allow no boy, no girl, to go out from their doors without understanding something of the use, the power, and the beauty of the mother tongue. There is danger of giving overmuch attention to scientific training. We are carrying that too far—not teaching too much science, but too many sciences. There is a vast distinction between the two things. Instead of developing in our students the scientific spirit, I think we have tried to cram them with facts.) There should be, I say, a thorough training in English, including a course extending over not less than two years: a touch of scientific teaching, enough to make the student familiar with the scientific spirit and method, and a thorough discipline in some language which has a fixed pedagogical form, preferably Latin. The technical institution may not have Latin in its course; that is not at all to the point. The study of one language which can be progressively taught is of peculiar educational value, even if the student does not expect ever to use the language itself. German would serve almost as well as Latin, French almost as well as German. Greek lacks the incidental practical value of Latin, German, and French. But one language other than the English should be required as a guaranty of the preliminary fitness required by the collegiate standard. There should be at least three years of solid study, grinding drill, until the student has learned something of the formation of language, and much of its use.

I know there are some who have the feeling that we can somehow absorb language by talking a good deal, writing a little, and reading less, and doing all with no particular care and application of the mind to the work. We shall not get a final agreement as to all this in one year or in ten years, but we have our eyes fixed on the future, "and wisdom is justified of her children."

There are matters of detail which must not be dwelt upon here. What I have said, in this hasty and inadequate treatment of the theme of "Industrial education," I have said because there is so large an opportunity for the board of agriculture to further the cause of education, and, most of all, agricultural education. Indeed, to hold official position of any kind in the grand old Commonwealth of Massachusetts is to be under a certain educational compulsion. As representatives of the farmers, you are empowered to act in both directions—upon the resistance of those who would oppose every movement toward a scientific agriculture and a scientific teaching of agriculture, and upon the impatience of those for whom the car of progress moves too slowly. Little by little the great problems of industrial education, problems not fairly appreciated until yesterday, are being worked out. And with the cooperation of the agriculturists themselves, with such unanimity as is possible when institutions and people together seek for the common good of all, the agricultural colleges will go on to definite aims, to wise and comprehensive methods, and to such general development as shall make the name agricultural college a true designation, and also a title of honor.

I thank you, Mr. Chairman and gentlemen, for your courtesy. There are a

thousand things I would be glad to have said. I am not sure there is anything that I have said which I would wish unsaid. The cause of truth is ours. Science and industry are God's handmaids, as they are truths. By them we shall gain the consummation of human life.

V.

CONSERVATISM IN SCIENTIFIC AGRICULTURE.[1]

By Prof. W. H. JORDAN, *Director of the Maine State College Agricultural Experiment Station, Orono, Me.*

The American Agricultural Experiment Station is this year twenty years old; the American College of Agriculture is older. During at least a quarter of a century the teacher and investigator, to a greater or less extent, have been active in this land of ours in their efforts to illuminate the business of the farmer with the beneficent light of science.

Their success has not been startling, though great enough to justify the effort. Inexperience, imperfect knowledge, the immense labor of successful teaching and investigation, prejudice, the inertia that always attends any educational movement, all have conspired to render the attainment of the ultimate object, viz, a more rational practice of agriculture, slow and difficult.

From one point of view, however, a great deal has been accomplished. Generous endowments, both State and national, expended by a large body of trained workers, an enlightened thought, and an improved farm practice testify not only to past achievements but to present effort on a scale that is truly marvelous. * * *

There is at least one complaint the farmers of the United States no longer have the right to utter, which is, that they do not receive full recognition in the exercise of the paternal functions of the national and State governments, or in the growth of the means and methods of public education. Whatever may have been their motives, or the arguments which may have been so successfully used in influencing their action, the representatives of the people have, in their exercise of legislative authority, dealt fairly generously with the industry that feeds us all. Our Government may reasonably claim to have done its part up to the present time in the efforts that are being made to impart special education and to discover needed truth.

The question which must come to the workers in college and station with great force and meaning is: Are we justifying this great use of time and money by what we are accomplishing? Is this tremendous activity that we are putting forth being directed along the right channels? Are those who are teaching and investigating, and who are speaking through the press or from the platform, fully recognizing the real needs of agriculture?

It is not my purpose at this time to attempt a statistical enumeration and discussion of our appliances for education and investigation, or to undertake a detailed criticism of the methods in vogue in the college and experiment station. I do propose, however, to call attention to certain general considerations which I believe should have a controlling influence in the development of class-room and popular instruction, and in the various lines of experiment and investigation.

The subject that is set for discussion is, Conservatism in scientific agriculture, which, perhaps, needs a preliminary definition as indicating the lines of thought which it is proposed to follow.

The conservatism for which I would contend is that which is induced by a recognition of three truths:

First. The proper cultivation of the man is fundamental to the safe development and right use of material resources.

Second. The education, that in agriculture is primarily important, proceeds

[1] Read before the Massachusetts Horticultural Society, January 18, 1896.

from instruction in the relations of matter and energy and in the scientific facts and principles which enter into and environ life, rather than in imparting the technics and manual skill of the farm.

Third. Substantial progress in any art must be based upon an accurate knowledge of underlying truths.

Scientific agriculture is commonly understood to be the practice of agriculture in accordance with the known facts and principles of science, but in our discussion to-day we will understand it to include as well the various organizations and activities that are auxiliary to agriculture as the means of rendering it more rational. Our subject involves, therefore—

(1) The experiment station.
(2) College and school instruction.
(3) The farmers' institute.
(4) The press.
(5) The farmer.

These I understand to be the various agencies through which an organized effort is being made to convey to agricultural practices the benefits of the exact knowledge we call science.

We will first consider, then, scientific investigation as a factor of modern agriculture. This is certainly the logical order, for we must discover truth before we can teach it. What relation does our subject bear to the work of the experiment station?

There exist, I believe, substantial reasons for the following assertion, namely: * * * The greatest obstacle to progress, or even safe procedure, in the art of agriculture now existing is an insufficient knowledge of foundation facts and principles. * * *

It is worthy of note that the only investigations which have outlived a half or even quarter of a century, and which have exerted a profound influence upon agriculture as an art, are those of a severely scientific character—investigations which were carried on in the laboratories of scientists who little dreamed of the far-reaching influence of their labors. The men who have given to the word science the great meaning and dignity which it now has have been lovers of the truth for truth's sake, and I sometimes fear that we as a people are not cultivating the spirit of the true investigator as we should. Is it true that our scientific labors are taking on a merely commercial aspect? Are we asking as the introduction to every piece of scientific work the question, How much will it be worth in dollars and cents?

For some, these questions fortunately can be answered in the negative. It is desirable, however, that the enthusiastic scientific spirit shall more thoroughly pervade our experiment stations, for we sorely need the inevitable outcome of such a spirit. While it is properly a function of the station to show how existing knowledge may be utilized by experiments which serve as object lessons, I believe a more important function at the present stage of knowledge is the discovery of laws and facts fundamental to agricultural methods, leaving the application to farm practice of much of this added knowledge largely with the mass of intelligent farmers, where, after all, it must generally be left. I affirm, then, that the conclusions derived from experiment station work should manifest a conservatism that is induced by severe and searching methods of experiment and investigation.

Our attention will now be directed toward the work of the schools. This is of prime importance, because here are to be trained the men who will be influential in determining the status of agriculture. The standing of any profession or business depends not so much upon the kind of work performed as upon the character and quality of the men engaged in it, provided, of course, that the work is honorable. If the social horizon of the tiller of the soil is narrow, it is not because he digs in mother earth, but is in part because of his inability to reach out to larger

social and intellectual opportunities. While it is not to be expected that all the followers of any calling shall stand in the forefront of social and intellectual life, it is certainly true that if agriculture is to maintain its proper dignity and influence among the world's great industries, politically and socially, it must number among its followers men of the same intellectual ability and wide range of vision that are found in other callings.

Farmers have often complained that lawyers have chiefly legislated for them, but if this is true it is partly because they have not been shown their ability to determine their own political and social status. The conditions that make for supremacy in human society are not nullified or reversed as a favor to the farmer. At the same time that we recognize this fact we must admit another of equal importance, viz, that the interests of agriculture, whether in legislation or in business and social conflicts, are safest in the hands of its own followers who are qualified by education and experience successfully to compete with opposing interests. For these reasons, then, we are anxious that the training of the schools shall render the best possible service to agriculture in the preparation of its leaders.

In order that this shall be accomplished, we must give place to a conservatism which recognizes the value of past experience in the means and methods of imparting a sound education.

When the land-grant colleges were first organized, a popular notion prevailed that an entirely new order of education was to be established—that the matter and manner of the classical college were to be replaced by other subjects and other methods. The young man was to be trained to do rather than to think. The introduction into the curricula of these schools of such subjects as the modern languages, literature, and metaphysics, or even extended instruction in the sciences, was resented by many as foreign to the spirit and purpose of the act which made these new institutions possible. Had such views prevailed, the cause of technical education would have suffered great harm. These extremists forgot, or never knew, that a man's mastery of affairs does not proceed primarily from memorizing a catalogue of material facts or from manual skill, but rather from his capacity for severe and logical thought, and that a farmer's success is due not so much to his ability to plow a straight furrow or his capacity for hard labor as to that analytical power of mind which enables him to discern the right relation of things. To equip a man merely with the technics of the practice of agriculture would fall far short of preparing him for that larger social influence which is essential to leadership or the highest success.

Fortunately, we believe, the four-years courses in agriculture, as now presented by our best institutions, include a fair proportion of general training subjects, combined with such a sequence of chemical, physical, and biological studies that the faithful student not only attains a cultivated intellect, but is given a systematic insight into the world of matter and of life with which he has to deal. Such courses represent the conservative position and are a logical result of the experience of the past.

That they do not impart sound learning and can only meet the demands of an inferior scholarship I do not for an instant admit.

It seems, however, that some who are interested in our land-grant collges place a low estimate upon the educational value of courses in agriculture as they now exist. Certain recent utterances concerning this matter are like a dash of cold water in the face to those who had come to regard the agricultural course in some of our colleges as the peer of any other found there.

The most notable of these utterances is the address delivered last winter before the Massachusetts Board of Agriculture by the able president of the New Hampshire Agricultural College. I propose, in this connection, to criticise some of the main points of this address, because they are based upon what, in my judgment,

is a serious misconception of the essentials of a four-years course in agriculture, and because in so doing I may be able to make clear the views I desire to present.

Certain conclusions reached by President Murkland may be justly summarized as follows:

(1) A "pedagogical form" is a "necessity for teaching any subject," meaning by pedagogical form a logical or progressive series of lessons.

(2) The courses in mathematics and classics have taken on a fixed pedagogical form, which (inferentially) gives them a maximum value as a means of education.

(3) Courses of study related to agriculture and to engineering, especially the former, have suffered from lack of pedagogical form.

(4) Engineering, because so closely allied to mathematics, has found a pedagogical form "ready to its hand in the established form of mathematical teaching," and so is now taught in fairly satisfactory courses of study.

(5) Courses in agriculture are in a present "practically inextricable" "confusion," because "with such material for teaching as is now available there is no perspective possible in teaching agriculture;" * * * "and where no other science is involved there is nothing of that orderly sequence in the progress of instruction which has made the classical education, and to some degree the scientific education, a process commanding respect."

These latter statements are mostly quotations from the address under discussion, and are those to which I shall chiefly confine my attention.

Dr. Murkland's strictures on the courses of agriculture that now exist are based in part on two assumptions:

(1) That agriculture is, or is susceptible of becoming, an independent science, so that in classifying it for teaching purposes we may properly speak of "other sciences."

(2) That the sciences, such as the chemical and biological, which we now recognize as somewhat "precisely formulated," are not a proper and essential part of a course in agriculture, and therefore chemistry, physics, and biology do not, and may not, properly lend their pedagogical form to teaching engineering.

For myself, I can not accept these assumptions. Agriculture is an art, and the act of Congress of 1862 directed us to "teach the sciences related" thereto. To be sure, we may speak of theories of scientific agriculture as a science, but in order to teach these theories as theories are taught in engineering courses we must give instruction not merely in "elementary chemistry" but in advanced chemistry—the chemistry of the plant and the animal, than which none is more profound; and what is true of chemistry is true of other sciences in their relation to the agricultural course. No student can be made properly to understand the facts of horticulture, of plant feeding, or of animal nutrition until he is thoroughly grounded in the botanical, chemical, and physiological facts and principles underlying these subjects; and so, instead of teaching one science, we must teach several.

I do not see how it will ever be possible to so coordinate into a single science, for teaching purposes even, the mutual relations of physics, chemistry, biology, and physiology to the art of agriculture, so that it will not be necessary to teach the individual sciences, unless the course in agriculture is made post-graduate. What, then, does the four-years course in agriculture become? Simply the teaching of a collection of sciences along those lines which lead up to and involve a discussion of their application to the art of agriculture. When, therefore, chemistry, physics, botany, and physiology are taught in this relation, they do not lose their identity, but retain the same logical order which they have when taught as pure sciences, and they lend to the course in agriculture the teaching form which is considered so desirable.

As a matter of fact, four-years courses of agriculture, as now offered by some colleges, at least, are really specialized courses in the sciences, differing from the

ordinary scientific course by pointing out the applications of the sciences to an art. Are such courses a mistake? Are they framed in accordance with false views? I believe not, and this is the reason for my belief: The real and important need of which the farmer is conscious is for a knowledge of conditions and not for methods or for skill in manipulation. When he clearly understands the reasons for that which goes on about him, the right method will appear. The difficulties lie with explanations, not with mechanical processes. And besides, agriculture is not a business involving such delicate and intricate mechanical operations that attendance upon a college would be justified in order to learn them, although the modern dairy, the forcing house, and the fruit garden do require skill. But I venture to assert that no machines or practical methods have yet become available to the agriculturist whose use the clear-brained inmates of our farm homes have failed to master. The spraying of fruit with fungicides and insecticides illustrates how readily the necessary manipulation was acquired when the reasons for these operations became evident. It is the explanation of phenomena, then, which the extended course of study should give in order that the farmer may know how to adapt himself to the varying and complex conditions which he meets in his work.

The same educator whose utterances I have called in question has made other statements in his address which should not pass unnoticed. He declares that "arranging different courses of study in a general agricultural course is as nearly haphazard a process as anything can be in matters of instruction," and that "certain text-books may be assigned to the senior year in one of these colleges with absolutely no reason why they should not have been assigned to the freshman year or, for that matter, to some year of the preparatory school course."

It would have been gratifying if President Murkland had illustrated this statement by specifying particular studies which are so devoid of relation to other subjects that their place in a course of study is in no way indicated, for then his meaning would be more clear. Did he have in mind the subject of tillage, which, unless considered in the light of the underlying principles of chemistry and physics, would be taught in a manner unworthy an extended course of instruction? Did he refer to the teaching of horticulture, which, to be intelligently and systematically done, must be based upon a previously acquired knowledge of botany? Did he mean the subject of plant nutrition, in which the instruction is always halting and unsatisfactory if the student knows no chemistry? Or animal nutrition, to the proper consideration of which must be brought more than a smattering of chemical and physiological information. I believe I am fairly familiar with the list of subjects that could properly be placed in a four-years course in agriculture, and I know of no one which does not seem to have its position as closely indicated as is the case with many mathematical and language subjects, and with some subjects the logical order is almost imperatively fixed.

The statements and conclusions lead to a wide range of questions which we can not discuss here. I will briefly notice one, however. Have the schools of lower grade and the short course in agriculture, such as the "dairy course," no justification?

They are abundantly justified both by what the four-years course has failed, and always will fail, to accomplish, and by the actual results which have followed their introduction. They are reaching young men who otherwise might never have had their thought stimulated to greater activity or their eyes fitted for larger vision. They are not ideal. They are not a full substitute for the four-years course, but I am of the opinion that as a means of carrying to the mass of farmers a higher appreciation of exact knowledge they are likely to constitute the most efficient school effort that we are now attempting. I do most emphatically protest, though, against these briefer courses being regarded as an acknowledgment that the higher

and fuller course lacks form and efficiency. The logic of such reasoning is not clear, and scarcely requires comment.

Passing now from that phase of our subject which relates chiefly to the college professor and the investigator, let us consider the need of conservatism in the interpretation to the farming public of its relation to scientific facts and theories. In this particular field of work, aside from the station bulletins, we have to do chiefly with the institute speaker and the editor.

In order that the farmer may be instructed and helped, and not confused, these two popular teachers should display a conservatism that is born of sound and adequate knowledge.

Institute speakers as we now find them include men of a great variety of experience. To-day we listen to the man of science and to-morrow to the man of practice, both of whom have their peculiar place and value. It is extremely desirable, however, that the one shall not attempt to occupy the province of the other. While there is an occasional scientist who is familiar with the methods of practice, and a few who till the soil that have a fairly wide range of scientific knowledge, the rule is that the one falls far short of expertness in the domain of the other. It is better that the specialist in some line of agricultural practice shall not feel called upon to furnish a scientific explanation of all that he does, and that the speaker who is expert mostly in some departments of science shall not give too much free advice in regard to the details of farm work. Such a regard for the proprieties will tend to the establishment of greater confidence on the part of the public in those who appear in the capacity of teachers.

It is to be feared, moreover, that there is a tendency to gauge the value and efficiency of an institute speaker chiefly by his ability to amuse an audience, rather than by his credentials for sound and accurate knowledge. This is partly due to the fact that many audiences of farmers are better satisfied with amusement than with an address which requires close and earnest attention. It is certain, however, that just as we now confess the disaster due to the incapacity of religious teachers whose only claim to confidence is a sanctified ignorance, so we can be sure that glibness of tongue is not all the qualification which teachers in agriculture should possess.

An error may be as effectually presented from the platform as a truth, but it is of vast importance to the hearer whether it be error or truth. A truth expressed in homely phrase is at least harmless and may be beneficial, but an error attractively uttered is always dangerous and may work injury. It is not an exaggeration to declare that some very grotesque science has been proclaimed at farm institutes by men who were out of their proper spheres of discussion, and who therefore lacked the exact knowledge necessary to accurate and reliable statements of a scientific character. This evil it is within the power of those who officially conduct public agricultural discussions to greatly remedy.

We will now consider somewhat briefly the relation of the press to scientific agriculture. What the agricultural editor most sorely needs is not only a conservative mind, but the ability to discriminate between the true and the false—an ability which does not proceed from a ready and attractive style of writing or from what we in general term the art of journalism, but from a fund of information.

The number of agricultural papers, and papers which have an agricultural page, that are offered to the reading public, is legion. To some of these the farmer is greatly indebted. They are conducted by competent men, who summarize for the readers the best knowledge and thought that are current. Some of them, however, present an aggregation of fact and theory which is without form or comeliness when viewed in the light of truth. * * * There is a great opportunity, though perhaps not yet a great demand, for men especially trained to be editors of agricultural newspapers. These should be men who possess the fundamentals

of science and practice, and while they may not be experts in any one direction, they should be so well acquainted with the sources of knowledge and with the status of men and things that they can sift the chaff from the wheat.

This is not a plea for an aristocracy of knowledge based upon an orthodox training in school or out of school, or upon a required assent to the recognized credo of science or practice. It is not to be expected that even men of acknowledged authority shall all bring their views to the same dead level, but it would be a relief if we could eliminate from public discussion those speakers and writers whose chief claim to a hearing is that they disagree with the accepted verdicts of science and practice, not because they have had the opportunity exhaustively to examine the foundations upon which these conclusions rest, but rather because, after a superficial observation of the surface of things, they are not able to reach the same conclusions. The theories which these pseudo-scientists weave out of the tissues of their own brains, though generally short-lived, may not only mislead, but do great harm by destroying confidence in the science that is worthy of the name.

It may be somewhat superfluous to suggest that there is need for conservatism on the part of the farmer, for he has been repeatedly pointed out as an example of excessive caution in the adoption of new ideas. Certainly he has sometimes assumed an attitude of even extreme reserve toward things scientific, and although the best farm practice furnishes abundant evidence that the discoveries of science have taken a firm hold upon the means and methods of agriculture, yet he is disposed carefully to question any new theories or change of practice that is presented to his attention. Such conservatism is wise. The farmer is receiving a great deal of free advice from a variety of sources, which, as we have tried to show, is not always reliable, and until by inexpensive experiments, or by less expensive observation, he secures reasonable proof of the value of a new method or appliance, he does well to adhere to his old and tried ways.

The peculiar characteristic pertaining to the farmer's conservative habit is that it occasionally suffers unfortunate and costly lapses. The owner of generous acres will often resist the teachings of science and experience, and will sneer at the advice of the ablest men in his own calling, only to grasp at the glib promises of the man he never before saw and of whose trustworthiness he knows absolutely nothing.

We find in farm homes, as we find everywhere, a strange expectancy concerning things new and untried. Humanity has always been hoping that out of the land of magic would come the relief from the burdens of life, or the promise and fulfillment of great rewards from little effort. The fraudulent food and fertilizer, the patent medicine, and the wonderful business opportunity which offers a chance to get something out of nothing, all exist because of this unconfessed faith in the extraordinary value of the unknown. It is this credulity concerning things outside the farmer's ordinary experience that renders it so difficult to defeat the schemes which only defraud. * * *

No one is infallible, no scientist has attained more than a very incomplete knowledge, and mistakes are a common experience, but we confidently assert that the highest realizations in agriculture lie in the conservative yet broadening influence of the scientific effort that is now being exerted in its behalf.

CHAPTER XI.

REQUIREMENTS FOR ADMISSION TO FRESHMAN CLASS IN COLLEGES, UNIVERSITIES, AND SCHOOLS OF TECHNOLOGY.

The requirements for admission to undergraduate courses of institutions for higher education in the United States are almost as varied as the number of such institutions. This diversity of requirements is a great burden to the preparatory schools of the country, as it necessitates the formation of a much larger number of classes than would be the case if uniform entrance requirements were adopted by at least the leading universities and colleges. A movement in this direction has been going forward for some years, and has been taken up by a number of college and other educational associations. Among the bodies throughout the country that are now engaged on this problem are the following:[1] "New England Association of Colleges and Preparatory Schools; Massachusetts Classical and High School Teachers' Association; Commission of Colleges in New England on Admission Examinations; Association of Colleges and Preparatory Schools of the Middle States and Maryland; Schoolmasters' Association of New York and vicinity; University and High School Conference of Colorado State Teachers' Association; Southern College Association; Tennessee Association of Colleges and Schools; High School Section, Ohio State Teachers' Association; College and Normal Section of North Dakota Educational Association; Nebraska Association of Superintendents and Principals; College Section of State Teachers' Association of Nebraska; Department of Colleges and High Schools, South Dakota Educational Association; Committee of Ten of South Dakota Educational Association on College Requirements; Southern Educational Association; Committee appointed by Southern Educational Association to consider relations of Colleges and Secondary Schools; Committee on High School Course, Nevada; Louisiana Association of Latin Teachers; North Central States Association of Colleges and Secondary Schools; Michigan Schoolmasters' Club; Committee of University Presidents to unify requirements; Department of Higher Education of the Montana State Teachers' Association; National Educational Association."

From the foregoing list it will be seen that there seems to be a general movement throughout the country in favor of uniform entrance requirements. Some tangible results have already been reached, especially noteworthy being the fact that the English requirements adopted by the Commission of Colleges in New England on Admission Examinations and the College Association of the Middle States and Maryland are now required for admission by 87 of the institutions of the country, from Maine to Oregon and from Minnesota to Missouri, 26 different States being represented.

The Commission of Colleges in New England on Admission Examinations was formed in 1886 in response to an appeal made by the New England Association of

[1] Education, May, 1897.

Colleges and Preparatory Schools for the purpose of maintaining and promoting uniformity in the requirements for admission. The commission as at present constituted has fifteen members, as follows: Amherst College, Amherst, Mass.; Boston University, Boston, Mass.; Bowdoin College, Brunswick, Me.; Brown University, Providence, R. I.; Colby University, Waterville, Me.; Dartmouth College, Hanover, N. H.; Harvard University, Cambridge, Mass.; Middlebury College, Middlebury, Vt.; Smith College, Northampton, Mass.; Trinity College, Hartford, Conn.; Tufts' College, Massachusetts; Wellesley College, Wellesley, Mass.; Wesleyan University, Middletown Conn.; Williams College, Williamstown, Mass.; Yale University, New Haven, Conn.

The actions and recommendations of the commission are not binding upon the several members thereof, but "full liberty of action is reserved to each faculty on all proposals made by the commission." One of the first matters to receive the attention of the commission was the requirement in English, and nearly all of the annual reports of the commission contain some action taken on this subject, which it is not necessary to repeat here. The admission requirements in English, as agreed upon by representatives of and adopted by the Commission of Colleges in New England on Admission Examinations, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, and the New England Association of Colleges and Preparatory Schools, are as follows:

ENGLISH.

I.—READING AND PRACTICE.

A limited number of books are assigned for reading. The candidate is required to present evidence of a general knowledge of the subject-matter of these books, and to answer simple questions on the lives of their authors. The form of examination will usually be the writing of a paragraph or two on each of several topics to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and calls for only a general knowledge of the substance of the books. In place of a part or the whole of this test the candidate may present an exercise book, properly certified to by his instructor, containing compositions or other written work done in connection with the reading of the books.

The books set for this part of the examination will be:

1897.—Shakespeare's As You Like It; Defoe's History of the Plague in London; Irving's Tales of a Traveler; Hawthorne's Twice Told Tales; Longfellow's Evangeline; George Eliot's Silas Marner.

1898.—Milton's Paradise Lost, Books I and II; Pope's Iliad, Books I and XXII; the Sir Roger de Coverley Papers in The Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's Ancient Mariner; Southey's Life of Nelson; Carlyle's Essay on Burns; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables.

1899.—Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII and XXIV; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's Ancient Mariner; De Quincey's The Flight of a Tartar Tribe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables.

1900.—Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; the Sir Roger de Coverley Papers in The Spectator; Goldsmith's The Vicar of Wakefield; Scott's Ivanhoe; De Quincey's The Flight of a Tartar Tribe; Cooper's The Last of the Mohicans; Tennyson's The Princess; Lowell's The Vision of Sir Launfal.

II.—STUDY AND PRACTICE.

A smaller number of books are assigned for more careful study. The examination upon these books covers subject-matter, form, and structure, and also tests the candidate's ability to express his knowledge with clearness and accuracy.

The books set for this part of the examination will be:

1897.—Shakespeare's Merchant of Venice; Burke's Speech on Conciliation with America; Scott's Marmion; Macaulay's Life of Samuel Johnson.

1898.—Shakespeare's Macbeth; Burke's Speech on Conciliation with America; De Quincey's The Flight of a Tartar Tribe; Tennyson's The Princess.

1899.—Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

1900.—Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison.

NOTE.—No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, idiom, or division into paragraphs.

In addition to the English requirements, the commission has for several years been at work on the requirements in Latin, Greek, and the modern languages. The requirements in Latin and Greek, as approved by the commission in 1895 and transmitted to the several colleges for their adoption, are as follows:[1]

LATIN.

I.—ELEMENTARY.

The elementary examination will be adapted to the proficiency of those who have studied Latin in a systematic course of five lessons a week, extending through at least three school years. It will consist of two parts (which can not be taken separately):

(*a*) The translation at sight of simple Latin prose and verse.

(*b*) A thorough examination on a prescribed portion of Cicero's speeches (about 80 pages, Teubner text), directed to testing the candidate's mastery of the ordinary forms, constructions, and idioms of the language; the test to consist, in part, of writing simple Latin prose involving the use of such words, constructions, and idioms only as occur in the speeches prescribed.

II.—ADVANCED.

The advanced examinations will be adapted to the proficiency of those who have studied Latin in a systematic course of five lessons a week, extending through at least four school years. The two examinations may be taken separately:

(1) The translation at sight of passages of Latin prose and verse, with questions on ordinary forms, constructions, and idioms, and on prosody.

(2) The translation into Latin prose of a passage of connected English narrative. The passage set for translation will be based on some portion of the Latin prose works usually read in preparation for college, and will be limited to the subject-matter of those works.

GREEK.

I.—ELEMENTARY.

The elementary examination will be adapted to the proficiency of those who, in addition to the course defined as suitable preparation for the elementary examination in Latin, have studied Greek in a systematic course of five exercises a week,

[1] Ninth Annual Report of Commission of Colleges in New England on Admission Examinations, pp. 9, 10.

extending through at least two school years. It will consist of two parts (which, however, can not be taken separately):

(*a*) The translation at sight of passages of simple Attic prose.

(*b*) A thorough examination on a prescribed portion of Xenophon (about 30 pages, Teubner text), directed to testing the candidate's mastery of the ordinary forms, constructions, and idioms of the language, the test to consist, in part, of writing simple Attic prose, involving the use of such words, constructions, and idioms only as occur in the portion of Xenophon prescribed.

II.—ADVANCED.

The advanced examinations will be adapted to the proficiency of those who, in addition to the course defined as a suitable preparation for the advanced examinations in Latin, have studied Greek in a systematic course of five exercises a week, extending through at least three school years. The two examinations may be taken separately:

(1) The translation at sight of passages of Attic prose and of Homer, with questions on ordinary forms, constructions, and idoms, and on prosody.

(2) The translation into Attic prose of a passage of connected English narrative. The passage set for translation will be based on some portion of the Greek prose works usually read in preparation for college, and will be limited to the subject-matter of those works.

The portions of Cicero and Xenophon prescribed for the elementary examinations will be changed from time to time, notice of change being given at least two years in advance.

The committee by whom the requirements in Latin and Greek were prepared also reported to the commission proposed courses of study showing how the work required above could be done. The courses as finally approved by the commission at its tenth annual meeting, in April, 1896, are as follows:

PROPOSED PREPARATORY COURSES.

LATIN.

First year, five lessons a week. First and second terms: Introductory lessons. Third term: Easy reading, such as Fables, Viri Romæ, Eutropius, etc. (15 to 25 pages[1]): practice in reading at sight[2] and in writing Latin; systematic study of grammar begun.

Second year, five lessons a week. First term: Easy reading continued (15 to 25 pages); Nepos or Cæsar (15 to 20 pages[3]). Second term: Cæsar (30 to 40 pages[4]). Third term: Ovid's Metamorphoses (750 to 1,000 lines). Practice in reading at sight and in writing Latin, with systematic study of grammar throughout the year.

Third year, five lessons a week. First term: Virgil's Æneid (750 to 1,000 lines[5]); Cicero, in Cat. I and II (23 pages). Practice in reading at sight and in writing Latin. Grammar. Second and third terms: Cicero, in Cat. III and IV (22½ pages). Cæsar (45 to 60 pages) and Ovid (500 to 750 lines), mainly for practice in reading at sight. Thorough grammatical review and practice in writing Latin, both based on study of Cicero, in Cat. II-IV.

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[1] Teubner pages are the standard.

[2] "Reading at sight" is used in these programmes as a convenient phrase to denote the reading of Latin or Greek with understanding of the sense, independently of or preliminary to the formal rendering into idiomatic English; and by "practice in reading at sight" is meant not merely the translation of unprepared passages in class, but the inculcation of correct methods of reading to be used by the pupil in preparing assigned passages as well.

[3] E. g., B. G. II (17½ pages).

[4] E. g., B. G. (33½ pages) or III and IV (34 pages).

[5] Book I contains 756 lines.

Fourth year, five lessons a week. Cicero (45[1] to 60 pages). Virgil (4,000[2] to 6,000 lines). Practice in reading at sight and in writing Latin. Grammar.

If the advanced examination in Latin composition is not required, the course may be reduced by one lesson a week in the third and fourth years.

GREEK.

First year, five lessons a week. First and second terms: Introductory lessons. Third term: Xenophon's Anabasis (20 to 50 pages). Practice in reading at sight and in writing Greek. Systematic study of grammar begun.

Second year, five lessons a week. Xenophon's Anabasis (continued), either alone or with other Attic prose (85 to 120 pages). Practice in reading at sight. Systematic study of grammar. Thorough grammatical review and practice in writing Greek, both based on study of Book II of the Anabasis.

Third year, five lessons a week. Homer (2,500[3] to 5,000[4] lines). Attic prose, with practice in writing Greek (25 to 40 pages[5]). Grammar. Practice in reading at sight.

If the advanced examination in Greek composition is not required, the course may be reduced by one lesson a week in the last year.

The commission also voted to recommend:

(1) That colleges which prescribe an examination in the translation and subject-matter of specified portions of Homer and Virgil unite in specifying for such examination Iliad, Books I and II, 1–493; Æneid, Books I–V; and that the selection of such additional reading in each author, as may be required by any college, be left to the discretion of the preparatory teacher, the amount only being stated by the college.

(2) That colleges which admit on certificate unite in specifying as required reading Xenophon, Anabasis, I–III; Homer, Iliad, I, II, 1–493; Cæsar, B. G. I–III; Cicero, the speeches against Cataline and on the Manilian Law; Virgil, Æneid, I–V; the selection of such additional reading in each author as may be required by any college being left to the discretion of the preparatory teacher, the amount only being stated by the college.

(3) That colleges which confine their tests in the translation of Greek and Latin authors to translations at sight base their examinations on the assumption that the candidate has read, as part of his preparation, the portions specified in vote (2) above, and that they so announce in their catalogues.

With respect to the admission requirements in modern languages, the commission seems to have some difficulty in arriving at a satisfactory decision. At the tenth annual meeting the following scheme of revised requirements was presented to the commission by the committee to whom the subject had been referred:

GERMAN.

I.—ELEMENTARY.

The elementary examination will be adapted to the proficiency of those who have studied German in a systematic course of five periods a week for one year. It will consist of two parts (which, however, can not be taken separately):

(*a*) The translation at sight of a passage of easy prose containing no rare words.

The passage set for translation will be suited to candidates who have read not less than 150 duodecimo pages of simple German, chiefly narrative prose; this

[1] E. g., pro Archia, de lege Manilia, and pro Marcello (46 pages).

[2] Books II–VI of the Æneid contain 3,999 lines.

[3] E. g., Iliad I–IV (omitting II, 494–end) and VI.

[4] E. g., Iliad I–III (omitting II, 494–end) and VI–VIII.

[5] Making a total of 130 to 190 pages of Attic prose, equivalent to four to six books of the Anabasis.

amount includes sight reading done in class. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into German of simple English sentences, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of the weak and the more usual strong verbs; the declension of articles, adjectives, pronouns, and such nouns as are readily classified; the commoner prepositions; the simpler uses of modal auxiliaries; the elements of syntax and word order. Proficiency may also be tested by direct questioning.

Practice in pronunciation by reading aloud as much as possible from the texts used in the class is recommended; also the writing of German from dictation.

II.—ADVANCED.

The advanced examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for three years. It will consist of two parts (which may be taken separately):

(*a*) The translation at sight of ordinary German.

In preparation for this examination candidates will be expected to have read, in addition to the amount specified under "Elementary (*a*)," at least 600 duodecimo pages of classical and contemporary prose and verse, to be selected from such works as the following: Riehl, Kulturgeschichtliche Novellen; Freytag, Bilder aus der deutschen Vergangenheit, especially Aus dem Mittelalter and Aus dem Jahrhundert des grossen Krieges; Kohlrausch, Das Jahr 1813; Schiller, Der dreissigjährige Krieg, Wilhelm Tell, Maria Stuart, Die Jungfrau von Orleans; Goethe, Hermann und Dorothea, Egmont, Iphigénie; Lessing, Minna von Barnhelm. At least one-half of the amount read should be nineteenth century prose.

(*b*) The translation into German of a passage of easy English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence, the elements of word formation, and the principal uses of prepositions and conjunctions; the essentials of syntax, especially the uses of modal auxiliaries and the subjunctive and infinitive modes. Proficiency may also be tested by direct questioning.

It is recommended that the candidate acquire the ability to follow a recitation conducted in German and to answer in that language questions asked by the instructor.

FRENCH.

I.—ELEMENTARY.

The elementary examination will be adapted to the proficiency of those who have studied French in a systematic course of five periods a week for one year. It will consist of two parts (which, however, can not be taken separately):

(*a*) The translation at sight of ordinary prose.

The passages set for translation will be suited to candidates who have read not less than 200 duodecimo pages from the works of at least three different authors. This amount includes sight reading done in class. Not more than half the reading should be from works of fiction. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into French of English sentences, or a short connected passage, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of regular and the more usual irregular verbs, such as aller, tenir, pouvoir, savoir, voir, vouloir, dire, faire, and those belonging to the classes represented by dormir, ouvrir, connaître, conduire, craindre; the forms and positions of the personal pronouns; the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives; the inflection of nouns and adjectives for gender and number, except rare

cases; the commoner uses of the article, and the partitive constructions. Proficiency may also be tested by direct questioning.

Pronunciation should be carefully taught and the pupil should be accustomed to hear and understand the spoken language. The writing of French from dictation is also recommended.

II.—ADVANCED.

The advanced examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for three years. It will consist of two parts (which may be taken separately):

(*a*) The translation at sight of standard French.

The passage set for translation will be suited to candidates who have read, in addition to the amount specified under "Elementary (*a*)," not less than 800 duodecimo pages of classical and contemporary prose and verse from the writings of at least five standard authors.

(*b*) The translation into French of English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence and a familiarity with the essentials of French syntax, especially the uses of modes and tenses, and also with the commoner idiomatic phrases. Proficiency may also be tested by direct questioning.

Careful attention should be paid to pronunciation and to the use of spoken French, that the candidate may at least acquire the ability to follow a recitation conducted in the language and to answer questions asked by the instructor.

The above requirements, while they received the general approval of the commission, do not seem to be entirely satisfactory, as is evidenced by the following extract from the report of the commission:

"After the committee had retired, the commission voted to accept the report and discussed the proposed requirements at length and very carefully, all the members participating in the discussion. It was clear that the problem of devising satisfactory requirements in French and in German was not altogether simple. The lack of parallelism, at certain points, between the requirements in French and those in German was noted; questions were raised as to the relation of the advanced requirements to the elementary in respect of the time allotted to each. It was observed that if a modern language is to become a substitute for Greek, four periods a week for three years in that language are not equivalent to five periods a week for three years in Greek, the amount presupposed in the new requirements in Greek. Finally, the commission unanimously voted:

"That the proposed requirements in German and French be transmitted to the colleges with the general approval of the commission.

"That the executive committee be instructed to invite from the modern language departments of the several colleges their opinions on the following details of the plan:

"1. The amount and character of the reading expected of candidates.

"2. The expediency of specifying authors in the advanced requirements; and that the executive committee be then empowered to take such further action in the premises as they deem expedient."

While other subjects have been called to the attention of the commission and have been discussed, no definite action has been taken thereon.

ASSOCIATION OF COLLEGES AND PREPARATORY SCHOOLS IN THE MIDDLE STATES AND MARYLAND.

The Association of Colleges and Preparatory Schools in the Middle States and Maryland owes its existence largely to the efforts of ex-President Edward H. Magill, of Swarthmore College, which resulted in the formation, in 1887, of the College Association of Pennsylvania. The objects of the association, as stated in the constitution, are "to consider the qualifications for candidates for admission

to the colleges and the methods of admission: the character of the preparatory schools, the courses of study to be pursued in the colleges, including their order, number, etc.; the relative number of required and elective studies in the various classes; the kind and character of degrees conferred; methods of college organization, government, etc.; the relation of the colleges to the State and to the general educational systems of the State and country; and any and all other questions affecting the welfare of the colleges or calculated to secure their proper advancement."

When it was first organized only colleges in Pennsylvania were eligible, but in 1888 the name was changed to the College Association of the Middle States and Maryland, and the constitution was changed so as to make eligible to membership any college in the States included in its name. Again, in 1892, the constitution and by-laws were changed so as to make eligible for membership all universities, colleges, normal and high schools, and other schools which prepare students for college within the bounds of the Middle States and Maryland. In 1896 there were enrolled as members of the association 51 colleges and universities and 86 secondary schools. An examination of the proceedings of the association discloses the fact that while numerous educational subjects have been discussed, no action has been taken on the subject of admission requirements, with the exception of the requirements in English, as noted on a preceding page.

NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS.

The North Central Association of Colleges and Secondary Schools was organized at Evanston, Ill., March 29, 1895, for the purpose of establishing "closer relations between the colleges and the secondary schools of the North Central States." The constitution of the association provides that "all decisions of the association bearing upon the policy and the management of higher and of secondary institutions are understood to be advisory in their character." This association has also recommended to its members the adoption of the English requirements, given on pages 458–459, and has now under consideration the subject of entrance requirements in history.

ASSOCIATION OF COLLEGES AND PREPARATORY SCHOOLS OF THE SOUTHERN STATES.

The Association of Colleges and Preparatory Schools of the Southern States was organized at Atlanta, Ga., on November 6, 1895. The constitution as adopted provides that "the object of this association shall be to consider the qualification of candidates for admission to colleges, the methods of admission, the character of the preparatory schools, the course of study to be pursued in the colleges and schools, including their order, number, etc., as well as such other subjects as tend to the promotion of interests common to colleges and preparatory schools."

The by-laws of the association are as follows:

1. No college shall be eligible to membership in this association which furnishes preparatory instruction in any subject as part of its college organization.

2. No college shall be admitted to or retain membership in this association which does not hold written entrance examinations for admission of at least the scope indicated in section 3 below, and publish the same annually, depositing copies of said examination papers with the secretary of this association.

3. The association prescribes the following as minimum requirements[1] for admission to college, the same to be binding on each institution belonging to this association.

In English: Requirements of the Association of Schools and Colleges in the Middle States and Maryland:

In history and geography: United States history and general geography.

[1] The requirements outlined in the by-laws are all to take effect with the fall term of 1897, *except the* requirements in Greek, which become operative with the fall term of 1898.

In mathematics: Arithmetic and algebra through quadratics, or algebra to quadratics and three books of plane geometry.

In Latin: Four books of Cæsar and four orations of Cicero (or their equivalent) with accompanying work in grammar and prose composition.

In Greek: Three books of Xenophon's Anabasis (or equivalent), with accompanying work in grammar and simple prose composition (operative in 1898).

Of the above subjects, examinations in history, geography, and English shall be required of all students admitted to college, provided that students pursuing technical studies in not more than two subjects may be excused from these examinations. Examinations in Latin, Greek, and mathematics, respectively, shall be required of all students expecting to continue these subjects. Certificates covering the above requirements may be accepted from duly accredited preparatory schools in lieu of entrance examinations at the colleges.

4. No college that admits students under 15 years of age shall be eligible to membership in this association.

5. No preparatory school that confers degrees shall be eligible to membership in this association.

The association has at present committees at work to see whether any changes should be made in the minimum requirements for admission to college as given in the by-laws, the said committees to report at the annual meeting in 1897.

SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION.

At the Buffalo meeting, in August, 1896, the Society for the Promotion of Engineering Education received a report from the committee on entrance requirements of engineering colleges, which had been appointed to investigate that subject. The number of institutions included in the investigation was 110, and the requirements for admission are tabulated in summarized forms, the requirements of individual institutions not being given. The conclusions arrived at by the committee are stated in the report in the following language:

"It is difficult to generalize to the extent of laying down absolute requirements to which all colleges should conform; yet, broadly speaking, there exist to-day two grades of engineering colleges, whose work lies about one year apart. For the first of these the minimum requirements should include the following subjects:

Algebra, advanced.	Two years of foreign language.
Plane and solid geometry.	American history and some additional history.
Physics with laboratory work.	Free-hand drawing.
Chemistry with laboratory work.	
New England requirements in English.	

"For the second grade the minimum requirements should include:

Algebra through quadratics.	English along the line of New England requirements, but less in amount.
Plane geometry.	American history.
Physics with laboratory work.	Free-hand drawing.
One year of foreign language.	

"Below these are colleges, like some of the colleges of agriculture and mechanic arts, that are forced by the necessities of environment or the terms of their foundation to maintain low standards of admission and do in course what other colleges throw into requirements. These should insist on requiring as a minimum:

Arithmetic (complete).	English along the line of New England requirements, but less in amount.
Elementary algebra.	American history.
Plane geometry.	

"Any lower requirements than these bring students into college before they have completed their courses in the lower schools."

NATIONAL EDUCATIONAL ASSOCIATION.

The committee on college entrance requirements appointed by the departments of secondary and higher education of the National Educational Association at the meeting held at Denver in July, 1895, presented a preliminary report at the Buffalo meeting in 1896. The report which was the result of the first year's work of the committee was printed in full in the June, 1896, number of the School Review, and consists of the tabulated requirements in French, German, Greek, history, Latin, mathematics, and science for admission to 60 representative institutions of the country, with remarks upon the same.

Mr. J. Remsen Bishop, of the Walnut Hills High School, Cincinnati, Ohio, who prepared the remarks on requirements in Greek, ascertained the number of institutions requiring specified portions in Greek, and suggested the following as a fair compromise which could be accepted as a requirement in Greek by the colleges of the country:

I. Xenophon and other Greek prose: Xenophon's Anabasis, four books; or Xenophon's Anabasis, one book, and one hundred pages of Goodwin's Reader; or Xenophon's Anabasis, two books, and Xenophon's Hellenica, two books; or Xenophon's Anabasis, three books, and two orations of Lysias.

II. Iliad and Odyssey: Three books of the Iliad, omitting catalogue of ships, or 1,800 lines from Iliad and Odyssey.

III. Sight translation: Practice in sight reading to the extent of one book of Xenophon's Hellenica and one book of either Iliad or Odyssey.

IV. Grammar: The essential portions of the Hadley-Allen Greek Grammar, or of Goodwin's Greek Grammar, or of some other standard grammar.

V. Prosody: The principles of hexameter verse.

VI. Prose composition: Translation of connected English prose, the vocabulary to be limited to that of Xenophon's Anabasis, Book II, and Xenophon's Hellenica, Book II.

The discussions on the other subjects consist largely in giving the number of institutions requiring specific portions of the several subjects, but do not contain suggestions for a uniform requirement.

COLLEGE AND UNIVERSITY COUNCIL OF PENNSYLVANIA.

The report of the State superintendent of public instruction of Pennsylvania for 1896 contains a report on higher education by the College and University Council created by an act of June 26, 1895. On the subject of admission requirements the report says:

"The standard of admission into the freshman class, established by the council as a minimum requirement for all institutions which may hereafter apply for the right to confer liberal or technical degrees, is given in the following report, which was received and adopted at the session of the council held on October 6, 1896.

"The council adopts the following entrance requirements, of which those relating to English, history, and mathematics are prescribed, and of the other language requirements two must be chosen, except that technical schools may require additional preparation in mathematics and physics as a fair equivalent for one language requirement.

"*English.*—Requirements of Commission of New England Colleges, page 458.

"*History.*—The course in history shall include United States history, as indicated below, and any one of the other courses in history appended.

"A. History and Government of the United States, including the settlement and development of the original thirteen colonies, the war of the Revolution, the formation and adoption of the Constitution, the subsequent history of the country.

"B. Greek history: The history of Greece to the death of Alexander, as contained in some standard elementary history of Greece.

"C. Roman history: History of Rome down to the death of Augustus, as contained in some standard elementary history of Rome.

"D. General history, as contained in some standard elementary text-book.

"E. English history, as contained in some standard elementary text-book.

"*Mathematics.*—Arithmetic, including the metric system. Algebra, through quadratic equations, as in standard college text-books. The whole of plane geometry, as in standard college text-books.

"*Latin.*—Latin grammar; Cæsar (first four books of the Gallic war); Cicero, six orations; Virgil, first four books of Æneid with prosody; Latin prose composition, not less than twenty exercises in a standard text-book.

"*Greek.*—Greek grammar; Greek prose composition, not less than twenty exercises in a standard text-book; Xenophon, first four books of the Anabasis; Homer, first three books of the Iliad with prosody (Book II not to include the catalogue of ships), or first three books of the Odyssey.

"*French.*—A thorough knowledge of elementary grammar, including irregular verbs of most frequent occurrence and the use of moods and tenses. Two hundred pages of contemporary prose.

"*German.*—A thorough knowledge of elementary grammar. One hundred pages of German prose."

PRESENT ADMISSION REQUIREMENTS.

The great amount of attention that is being devoted to the subject of admission requirements to college by numerous organizations has led this Office to collect and compile in tabulated form, convenient for comparison, the requirements for admission to the various courses of 475 universities and colleges, with the hope that such compilation may be of some assistance in the study of the subject. The information has been derived exclusively from the annual catalogues[1] of the several institutions, and in a large number of cases is not as definite as might be wished. One of the greatest obstacles in the collection of these data is due to the fact that a large number of the institutions maintain preparatory departments, and many of them do not publish requirements for admission to the freshman class beyond stating that the completion of the preparatory course or a course similar thereto will admit a candidate to the freshman class. The preparatory courses very often are not given in detail, so that it is impossible to tell how much of any individual branch of study is completed during the course, and therefore required for admission to college.

An examination of the table giving the requirements for admission will show a great diversity of requirements, some of them being lamentably low. It will be seen that in some institutions all that is required for admission to the freshman class is a knowledge of what are known as the common-school branches—reading, writing, spelling, arithmetic, geography, and history.

Admission requirements to A. B. course.—Of the 475 institutions included in the tabulated statement, 432 give the requirements for admission to the freshman class of the A. B. course. Of this number 402 require some preparation in Latin, 318 in Greek, and 60 in a modern language. In addition to these there are 25 institutions in which Greek is optional with a modern language, while the number of institutions that require Latin, Greek, and a modern language is 43. From these figures it will be seen that 22 institutions do not require Latin for admission to an A. B. course, 114 require no Greek, and 372 institutions will admit students without any knowledge of modern languages.

Latin.—Considering the Latin requirements in detail, it is found that 374 institutions require some preparation in Cæsar. Of this number 180 require 4 or more books, 27 require 3 books, 19 require 2 books, 8 require Gate to Cæsar, and 140 do

[1] With but few exceptions, the catalogues for the year 1895-96 were used.

not specify the amount demanded. The number of institutions specifying less than 4 books of Cæsar is very small, being but 54, or 12½ per cent of the total number.

The number of institutions requiring Cicero is 288, or 86 less than the number requiring Cæsar. Of the total number requiring Cicero, 117 require 6 or more orations, 23 require 5 orations, 36 require 4 orations, 8 require 3 orations, 9 require 2 orations, 3 require 1 oration, 8 require Cicero's letters, and 84 do not specify the amount required.

Virgil is required by 257 institutions, 136 of which require 6 or more books. Of the remainder, 9 institutions require 5 books, 22 require 4 books, 14 require 3 books, 9 require 2 books, 2 require 1 book, and 65 do not specify the amount required. In addition to these requirements, 13 institutions require the Eclogues, 5 require Georgics, and 4 require Bucolics.

Latin grammar, prose composition, and reading at sight may almost be considered as universal requirements, with the exception of a small number of institutions where the Latin requirements are very meager.

Greek.—The number of institutions requiring Greek for admission to the A. B. course is 318, of which number 286 require some knowledge of the Anabasis, 153 of the Iliad, and 12 of Herodotus. Of the institutions requiring the Anabasis, 98 require 4 or more books, 56 require 3 books, 25 require 2 books, 23 require 1 book, and in 84 cases the amount required is not specified. Of the institutions requiring the Iliad, 99 require 3 books, 21 require 2 books, 1 requires 1 book, and 32 do not give the amount required.

Mathematics.—With respect to the requirements in mathematics, it may be seen that 346 institutions require an examination in arithmetic. The other 86 institutions that do not require an examination undoubtedly suppose that the study of arithmetic has been completed before a candidate presents himself for admittance to college. The requirements in arithmetic usually include a knowledge of the metric system of weights and measures. Algebra is required by 412 institutions, leaving but 20 institutions that admit students to an A. B. course without some knowledge of algebra. Algebra, through quadratics or beyond, is required by 174 institutions; to quadratics, is required by 37, and 201 institutions simply state that algebra is required. With respect to geometry, it is found that 294 institutions require plane geometry; 93, solid geometry, and 8, spherical geometry. Two institutions require an examination in conic sections, and 4 in trigonometry.

History.—The requirements in history seem to be more varied than in any other branch of study. History of the United States is required by 306 institutions, civil government by 129, and State or local history by 9 institutions. General history is required by 127 institutions, history of Greece by 112, and history of Rome by 116. As a rule the institutions requiring the history of Greece also require the history of Rome. History of England is required by 57 institutions, and the history of France and of Germany by but 1.

Admission requirements to B. S. course.—Included in the tabulated statement are the requirements for admission to the B. S. course of 318 institutions. In a number of these institutions the B. S. degree is conferred on students who have completed courses of study in engineering, agriculture, etc.—courses in which, as a rule, no ancient language is required, and naturally none is required for admission thereto. It is, therefore, not surprising that while 93 per cent of the institutions require Latin for admission to the A. B. course, only 55 per cent require Latin for admission to the B. S. course, and only 7 institutions require Greek for admission to such course. The number of institutions requiring a modern language is 123, and a number allow an option between ancient and modern languages. While it is generally conceded that the requirements to the B. S. course are some-

what less than those to the A. B. course, there seems to be a tendency to raise the B. S. requirements until they shall be equal to the A. B. requirements.

In an article on "The new Harvard entrance requirements," by Albert Bushnell Hart, in the October, 1897, number of the Educational Review, he says: "For the Lawrence Scientific School, where the Greek question plays no part, the faculty has already fixed a combination of subjects with large options, and has announced that the entrance requirements in that school will gradually be increased till they reach about the same level as the college (A. B.) requirements." Another noticeable fact in this connection is that Cornell University, Ithaca, N. Y., has abolished the B. S., B. L., and Ph. B. degrees, and will hereafter confer the A. B. degree for the completion of all courses of study excepting purely technical and professional courses, for which technical degrees will be conferred.

The summarized statistics, by States and Territories, of the principal requirements for admission to A. B., B. S., B. L., and Ph. B. courses of study are given in the following tables, while the detailed requirements for each institution are given on the pages immediately following the summaries. The principal object in compiling the requirements was to show, for as many institutions as possible, the amount of preparation required by them of candidates for admission without giving in detail the manner in which the several branches of study should be mastered. To give the method of preparation recommended by the several institutions would require more space than can be allotted to this subject at the present time.

Requirements for admission to A. B. course.

State or Territory.	Institutions having A. B. courses included.	Institutions requiring English requirements of Commission of New England Colleges.	Institutions requiring Latin.	Institutions requiring Greek.	Institutions requiring a modern language.	Institutions requiring plane geometry.	Institutions requiring solid geometry.	Institutions requiring physics.	Institutions requiring history other than United States history.	Institutions requiring Latin, Greek, and a modern language.	Institutions in which Greek is optional with a modern language.
United States	432	80	402	318	60	294	93	152	311	43	25
North Atlantic Division	76	40	70	59	12	67	5	12	64	17	13
South Atlantic Division	61	4	59	39	9	37	4	7	25	8	2
South Central Division	75	3	67	49	2	31	8	20	44	1	.....
North Central Division	183	29	173	146	32	142	68	96	153	12	9
Western Division	37	4	33	25	5	27	8	17	25	5	1
North Atlantic Division:											
Maine	3	3	3	3	1	3	.....	.....	3	1	.....
New Hampshire	1	1	1	1	.....	1	.....	.....	1	.....	.....
Vermont	2	1	2	2	.....	2	.....	.....	1	.....	.....
Massachusetts	12	9	10	7	7	11	1	2	12	6	2
Rhode Island	1	1	1	1	1	1	.....	.....	1	1	.....
Connecticut	3	2	3	3	1	3	.....	.....	3	1	.....
New York	24	12	22	19	6	21	2	4	22	5	5
New Jersey	4	2	4	4	3	3	.....	1	2	3	.....
Pennsylvania	26	9	24	19	3	22	2	5	19	.....	6
South Atlantic Division:											
Delaware	1	.....	1	.....	.....	1	.....	.....	.....	.....	.....
Maryland	11	2	11	5	4	4	2	.....	9	3	2
District of Columbia	4	1	4	4	3	3	1	1	3	3	.....
Virginia	8	1	8	4	.....	6	.....	.....	.....	.....	.....
West Virginia	3	.....	2	.....	.....	1	.....	.....	1	.....	.....
North Carolina	12	.....	12	11	.....	1	.....	2	4	.....	.....
South Carolina	9	.....	9	7	1	3	.....	2	4	1	.....
Georgia	8	.....	7	5	.....	6	.....	2	1	.....	.....
Florida	5	.....	5	3	1	2	1	.....	3	1	.....
South Central Division:											
Kentucky	12	1	11	9	1	3	1	3	7	1	.....
Tennessee	21	2	16	15	.....	9	3	5	10	.....	.....
Alabama	5	.....	4	3	.....	.....	.....	.....	2	.....	.....
Mississippi	5	.....	5	2	.....	2	1	2	2	.....	.....
Louisiana	8	.....	8	5	.....	4	.....	1	5	.....	.....
Texas	12	.....	12	11	.....	8	2	6	9	.....	.....
Arkansas	9	.....	8	3	.....	4	.....	2	6	.....	.....
Oklahoma	1	.....	1	.....	.....	1	1	1	1	.....	.....
Indian Territory	2	.....	2	1	1	.....	.....	.....	2	.....	.....
North Central Division:											
Ohio	36	4	35	31	4	27	13	19	34	3	1
Indiana	14	2	12	10	1	12	6	6	12	.....	2
Illinois	27	4	25	20	4	20	5	13	19	2	2
Michigan	11	7	10	10	1	10	7	10	10	1	.....
Wisconsin	7	3	7	7	2	5	3	3	7	1	1
Minnesota	9	3	8	7	3	7	3	5	8	1	.....
Iowa	21	2	21	18	3	20	15	15	18	1	.....
Missouri	25	1	22	17	2	14	3	6	17	2	1
North Dakota	3	.....	3	2	.....	3	1	2	3	.....	.....
South Dakota	5	.....	5	5	.....	5	5	5	4	.....	.....
Nebraska	10	1	10	7	.....	7	4	4	8	.....	1
Kansas	15	2	15	12	2	12	3	8	13	1	1
Western Division:											
Montana	2	.....	2	1	.....	2	1	.....	.....	.....	.....
Wyoming	1	.....	1	1	.....	1	1	.....	.....	.....	.....
Colorado	5	3	5	5	3	4	.....	2	5	3	.....
Utah	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Nevada	1	.....	1	.....	.....	1	.....	1	1	.....	.....
Idaho	1	.....	1	.....	.....	1	1	.....	1	.....	.....
Washington	7	.....	6	6	1	4	.....	3	4	1	.....
Oregon	6	1	6	3	.....	4	2	4	5	.....	1
California	13	.....	11	9	1	9	3	7	9	1	.....

Latin requirements for admission to A. B. course.

State or Territory.	Institutions requiring Cæsar.					Institutions requiring Cicero.							
	4 or more books.	3 books.	2 books.	Gate to Cæsar.	Amount not specified.	6 or more orations.	5 orations.	4 orations.	3 orations.	2 orations.	1 oration.	Letters.	Amount not specified.
United States	180	27	19	8	140	117	33	36	8	9	3	8	84
North Atlantic Division	55	4	1	.....	9	45	3	4	5	.....	2	3	3
South Atlantic Division	13	7	6	1	12	5	1	6	.....	2	.....	1	7
South Central Division	15	5	3	5	34	1	1	8	.....	4	.....	1	16
North Central Division	85	9	7	.....	62	57	17	14	2	2	1	2	46
Western Division	12	2	2	2	13	9	1	4	1	1	.....	1	12
North Atlantic Division:													
Maine	3	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
New Hampshire	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Vermont	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....
Massachusetts	8	.....	.....	.....	2	6	2	.....	.....	.....	.....	1	.....
Rhode Island	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Connecticut	2	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....
New York	20	.....	.....	.....	3	18	.....	.....	.....	.....	2	2	2
New Jersey	3	.....	.....	.....	1	3	.....	.....	.....	.....	.....	.....	.....
Pennsylvania	16	4	1	.....	3	11	.....	3	4	.....	.....	.....	1
South Atlantic Division:													
Delaware	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	5	.....	1	.....	3	2	.....	.....	.....	1	.....	1	.....
District of Columbia	2	.....	1	.....	1	1	1	1	.....	.....	.....	.....	.....
Virginia	2	1	.....	.....	3	1	.....	.....	.....	.....	.....	.....	.....
West Virginia	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	1
North Carolina	2	1	3	.....	4	.....	.....	3	.....	.....	.....	.....	1
South Carolina	.....	5	.....	1	3	.....	.....	3	.....	.....	.....	.....	1
Georgia	1	.....	.....	.....	3	.....	.....	.....	.....	1	.....	.....	3
Florida	1	.....	1	.....	2	1	.....	.....	.....	.....	.....	.....	1
South Central Division:													
Kentucky	3	1	1	1	4	1	.....	2	.....	.....	.....	.....	.....
Tennessee	4	2	.....	3	10	.....	.....	3	.....	1	.....	.....	6
Alabama	.....	1	.....	.....	2	.....	.....	.....	.....	.....	.....	1	1
Mississippi	.....	.....	2	.....	3	.....	.....	.....	.....	2	.....	.....	.....
Louisiana	1	.....	.....	1	5	.....	.....	1	.....	.....	.....	.....	3
Texas	3	.....	.....	.....	7	.....	.....	1	.....	.....	.....	.....	4
Arkansas	3	1	.....	.....	2	.....	1	.....	.....	.....	.....	.....	2
Oklahoma	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Indian Territory	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....
North Central Division:													
Ohio	14	2	2	.....	13	17	.....	1	.....	.....	.....	.....	9
Indiana	7	1	1	.....	4	3	4	1	1	.....	.....	.....	3
Illinois	12	2	.....	.....	8	7	1	3	1	.....	.....	.....	9
Michigan	8	.....	.....	.....	3	6	1	.....	.....	.....	.....	1	3
Wisconsin	3	1	2	.....	1	5	.....	.....	.....	.....	.....	1	.....
Minnesota	4	2	.....	.....	1	2	2	1	.....	.....	1	.....	1
Iowa	13	1	1	.....	6	4	5	4	.....	1	.....	.....	4
Missouri	7	.....	.....	.....	12	2	.....	3	.....	1	.....	.....	8
North Dakota	1	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	2
South Dakota	3	.....	.....	.....	2	3	.....	.....	.....	.....	.....	.....	1
Nebraska	4	.....	.....	.....	6	4	.....	1	.....	.....	.....	.....	3
Kansas	9	.....	1	.....	4	4	4	1	.....	.....	.....	.....	4
Western Division:													
Montana	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2
Wyoming	.....	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Colorado	3	.....	.....	.....	2	3	.....	.....	.....	.....	.....	.....	2
Nevada	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Idaho	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Washington	2	.....	.....	.....	4	1	.....	1	.....	.....	.....	1	3
Oregon	.....	1	1	.....	1	1	.....	2	.....	.....	.....	.....	.....
California	7	.....	.....	.....	4	4	1	.....	.....	1	.....	.....	4

Latin requirements for admission to A. B. course—Continued.

State or Territory.	Institutions requiring Virgil.									
	6 or more books.	5 books.	4 books.	3 books.	2 books.	1 book.	Eclogues.	Georgics.	Bucolics.	Amount not specified.
United States	136	9	22	14	9	2	13	5	4	65
North Atlantic Division	50	1	2	5	1	.....	8	3	2	1
South Atlantic Division	6	.....	1	3	4	1	1	.....	.....	.....
South Central Division	2	.....	5	2	2	1	.....	.....	.....	15
North Central Division	64	8	11	4	2	.....	2	1	2	36
Western Division	14	.....	3	.....	.....	.....	2	1	.....	6
North Atlantic Division:										
Maine	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vermont	1	1	.....	.....	.....	.....	1	.....	.....	.....
Massachusetts	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut	3	.....	.....	.....	.....	.....	1	.....	1	.....
New York	18	.....	.....	.....	.....	.....	5	3	.....	1
New Jersey	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania	12	.....	2	5	1	.....	1	.....	1	.....
South Atlantic Division:										
Delaware	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Maryland	2	.....	1	.....	1	1	1	.....	.....	.....
District of Columbia	2	.....	.....	1	.....	.....	.....	.....	.....	.....
Virginia	.....	.....	.....	1	.....	.....	.....	.....	.....	1
West Virginia	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
North Carolina	1	.....	.....	.....	2	.....	.....	.....	.....	.....
South Carolina	.....	.....	.....	1	1	.....	.....	.....	.....	1
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Florida	1	.....	.....	.....	.....	.....	.....	.....	.....	1
South Central Division:										
Kentucky	.....	.....	.....	1	1	.....	.....	.....	.....	2
Tennessee	.....	.....	3	.....	1	.....	.....	.....	.....	7
Alabama	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Mississippi	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Texas	.....	.....	.....	.....	.....	1	.....	.....	.....	3
Arkansas	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Oklahoma	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Indian Territory	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
North Central Division:										
Ohio	15	.....	3	1	.....	.....	1	1	1	7
Indiana	2	2	2	.....	2	.....	.....	.....	.....	2
Illinois	9	1	1	1	.....	.....	.....	.....	1	7
Michigan	5	.....	1	.....	.....	.....	.....	.....	.....	1
Wisconsin	5	.....	.....	.....	.....	.....	1	.....	.....	.....
Minnesota	2	1	2	.....	.....	.....	.....	.....	.....	1
Iowa	12	2	.....	.....	.....	.....	.....	.....	.....	4
Missouri	3	.....	.....	.....	.....	.....	.....	.....	.....	7
North Dakota	1	.....	.....	.....	.....	.....	.....	.....	.....	2
South Dakota	2	.....	1	.....	.....	.....	.....	.....	.....	1
Nebraska	3	1	.....	.....	.....	.....	.....	.....	.....	2
Kansas	5	1	1	2	.....	.....	.....	.....	.....	2
Western Division:										
Montana	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Colorado	3	.....	.....	.....	.....	.....	.....	.....	.....	1
Washington	2	.....	.....	.....	.....	.....	.....	.....	.....	3
Oregon	1	.....	3	.....	.....	.....	.....	.....	.....	.....
California	8	.....	.....	.....	.....	.....	2	1	.....	1

Greek requirements for admission to A. B. course.

State or Territory.	Institutions requiring Anabasis.					Institutions requiring Iliad.				Institutions requiring Herodotus.
	4 or more books.	3 books.	2 books.	1 book.	Amount not specified.	3 books.	2 books.	1 book.	Amount not specified.	
United States	98	56	25	23	84	99	21	1	32	12
North Atlantic Division	39	16	1	3	8	41	6	.....	4	.....
South Atlantic Division	5	3	12	5	6	6	1	.....	4	1
South Central Division	6	5	5	5	14	3	.....	.....	5	.....
North Central Division	37	29	5	10	47	37	13	1	18	8
Western Division	11	3	2	.....	9	12	1	.....	1	3
North Atlantic Division:										
Maine	2	1	.....	.....	.....	.....	3	.....	.....	.....
New Hampshire	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Vermont	1	.....	.....	1	.....	1	1	.....	.....	.....
Massachusetts	7	1	.....	.....	2	7	.....	.....	1	.....
Rhode Island	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Connecticut	3	.....	.....	.....	.....	3	.....	.....	.....	.....
New York	11	8	.....	.....	2	16	2	.....	2	.....
New Jersey	2	1	.....	.....	1	3	.....	.....	.....	.....
Pennsylvania	11	5	1	2	3	9	.....	.....	1	.....
South Atlantic Division:										
Delaware	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Maryland	2	1	2	.....	2	2	.....	.....	.....	1
District of Columbia	2	.....	1	.....	1	2	1	.....	.....	.....
Virginia	.....	.....	1	1	.....	.....	.....	.....	.....	.....
North Carolina	.....	1	1	2	.....	.....	.....	.....	.....	.....
South Carolina	.....	1	5	1	1	1	.....	.....	2	.....
Georgia	.....	.....	1	1	1	.....	.....	.....	1	.....
Florida	1	.....	.....	.....	1	1	.....	.....	1	.....
South Central Division:										
Kentucky	1	1	2	1	3	.....	.....	.....	1	.....
Tennessee	4	1	1	2	5	2	.....	.....	4	.....
Alabama	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Mississippi	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana	.....	.....	.....	1	1	.....	.....	.....	.....	.....
Texas	.....	2	.....	1	4	.....	.....	.....	.....	.....
Arkansas	.....	1	.....	.....	1	1	.....	.....	.....	.....
Indian Territory	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
North Central Division:										
Ohio	10	7	.....	.....	8	10	2	.....	2	1
Indiana	3	2	.....	.....	6	.....	1	.....	3	.....
Illinois	5	4	.....	1	2	2	.....	.....	4	1
Michigan	3	2	.....	.....	4	.....	3	.....	1	.....
Wisconsin	5	.....	.....	.....	.....	3	2	.....	.....	.....
Minnesota	1	3	.....	1	1	1	.....	1	1	.....
Iowa	2	2	4	5	5	3	.....	.....	2	2
Missouri	1	3	.....	.....	6	3	1	.....	2	.....
North Dakota	.....	1	.....	.....	1	1	.....	.....	.....	1
South Dakota	1	1	.....	1	2	1	1	.....	1	.....
Nebraska	3	1	.....	1	2	2	2	.....	1	2
Kansas	3	3	1	1	3	4	1	.....	1	1
Western Division:										
Montana	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Colorado	3	.....	.....	.....	1	3	.....	.....	.....	.....
Washington	1	.....	1	.....	4	1	.....	.....	.....	2
Oregon	1	2	1	.....	.....	2	.....	.....	.....	.....
California	6	1	.....	.....	3	6	1	.....	1	1

Requirements in mathematics for admission to A. B. course.

State or Territory.	Number of institutions requiring—								
		Algebra.			Geometry.				
	Arithmetic.	Amount not specified.	To quadratics.	Through quadratics.	Plane.	Solid.	Spherical.	Conic sections.	Trigonometry.
United States	346	201	37	174	294	93	8	2	4
North Atlantic Division	61	16	5	52	67	5	.....	.....	.....
South Atlantic Division	53	22	16	30	27	4	.....	.....	1
South Central Division	66	47	6	16	31	8	.....	.....	.....
North Central Division	144	96	7	74	142	68	8	1	3
Western Division	22	20	3	12	27	8	.....	1	.....
North Atlantic Division:									
Maine	3	1	.....	2	3	.....	.....	.....	.....
New Hampshire	1	.....	1	.....	1	.....	.....	.....	.....
Vermont	2	.....	.....	2	2	.....	.....	.....	.....
Massachusetts	8	1	.....	11	11	1	.....	.....	.....
Rhode Island	.....	.....	.....	1	1	.....	.....	.....	.....
Connecticut	.....	1	.....	2	3	.....	.....	.....	.....
New York	21	6	2	15	21	2	.....	.....	.....
New Jersey	4	.....	.....	3	3	.....	.....	.....	.....
Pennsylvania	22	7	2	16	22	2	.....	.....	.....
South Atlantic Division:									
Delaware	1	.....	.....	1	1	.....	.....	.....	.....
Maryland	11	5	2	3	4	2	.....	.....	1
District of Columbia	3	1	.....	3	3	1	.....	.....	.....
Virginia	8	1	3	4	6	.....	.....	.....	.....
West Virginia	3	1	.....	2	1	.....	.....	.....	.....
North Carolina	10	6	5	1	1	.....	.....	.....	.....
South Carolina	7	1	2	5	3	.....	.....	.....	.....
Georgia	6	4	3	.....	6	.....	.....	.....	.....
Florida	4	3	1	1	2	1	.....	.....	.....
South Central Division:									
Kentucky	12	9	1	2	3	1	.....	.....	.....
Tennessee	16	15	.....	4	9	3	.....	.....	.....
Alabama	5	1	1	1	.....	.....	.....	.....	.....
Mississippi	5	3	1	1	2	1	.....	.....	.....
Louisiana	6	3	2	2	4	.....	.....	.....	.....
Texas	11	7	1	4	8	2	.....	.....	.....
Arkansas	9	6	.....	2	4	.....	.....	.....	.....
Oklahoma	.....	1	.....	.....	1	1	.....	.....	.....
Indian Territory	2	2	.....	.....	.....	.....	.....	.....	.....
North Central Division:									
Ohio	32	24	.....	12	27	13	2	1	.....
Indiana	11	7	.....	6	12	6	1	.....	1
Illinois	21	13	1	11	20	5	.....	.....	.....
Michigan	8	4	.....	6	10	7	2	.....	.....
Wisconsin	7	3	.....	4	5	3	.....	.....	.....
Minnesota	8	3	1	5	7	3	.....	.....	.....
Iowa	11	10	1	10	20	15	1	.....	2
Missouri	21	16	2	5	14	3	1	.....	.....
North Dakota	2	2	.....	1	3	1	.....	.....	.....
South Dakota	3	2	.....	3	5	5	.....	.....	.....
Nebraska	7	7	.....	3	7	4	1	.....	.....
Kansas	13	5	2	8	12	3	.....	.....	.....
Western Division:									
Montana	1	2	.....	.....	2	1	.....	.....	.....
Wyoming	1	.....	.....	1	1	1	.....	.....	.....
Colorado	.....	1	1	3	4	.....	.....	.....	.....
Utah	1	1	.....	.....	1	.....	.....	.....	.....
Nevada	1	1	.....	.....	1	.....	.....	.....	.....
Idaho	1	.....	.....	1	1	1	.....	.....	.....
Washington	7	4	1	1	4	.....	.....	.....	.....
Oregon	5	5	.....	2	4	2	.....	.....	.....
California	5	6	1	4	9	3	.....	1	.....

Requirements in history for admission to A. B. course.

State or Territory.	Number of institutions requiring—																		
	United States history.	General history.	Roman history.	Greek history.	English history.	French history.	German history.	Modern history.	Ancient history.	State history.	Mediæval and modern history.	Ancient and mediæval history.	Ancient and modern history.	Greek and Roman or United States and English history.	Greek and Roman or general history.	Greek and Roman or English history.	United States or English history.	English or general history.	Civil government.
United States	306	127	116	112	57	1	1	20	28	9	3	2	1	5	3	2	2	1	129
North Atlantic Division	47	9	42	41	5	...	...	2	10	...	...	...	...	3	...	1	2	1	4
South Atlantic Division	36	10	28	8	5	...	...	4	2	4	...	...	...	...	...	...	...	...	2
South Central Division	57	25	7	8	15	...	...	...	...	5	1	1	...	...	...	...	...	...	21
North Central Division	143	70	49	47	25	...	...	12	15	...	2	1	1	2	3	1	...	...	83
Western Division	23	13	10	8	7	1	1	2	1	...	...	...	...	...	...	...	...	...	14
North Atlantic Division:																			
Maine	1	...	2	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
New Hampshire	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vermont	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Massachusetts	3	...	7	7	...	...	...	1	2	...	...	...	...	2	...	...	...	...	...
Rhode Island	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Connecticut	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
New York	19	2	16	16	3	...	...	...	5	...	...	...	...	...	...	...	1	...	...
New Jersey	2	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Pennsylvania	21	6	10	9	2	...	...	1	1	...	...	...	...	1	...	1	...	1	4
South Atlantic Division:																			
Delaware	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryland	10	2	1	1	4	...	...	2	1	1	...	...	...	...	...	...	...	...	...
District of Columbia	...	...	2	2	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...
Virginia	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Virginia	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
North Carolina	9	3	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
South Carolina	6	2	3	3	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Georgia	2	1	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Florida	3	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3
South Central Division:																			
Kentucky	9	4	...	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Tennessee	16	4	3	4	5	...	...	...	...	3	1	...	...	...	...	...	...	...	1
Alabama	5	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mississippi	4	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Louisiana	4	3	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Texas	10	6	2	1	1	...	...	...	...	2	...	1	...	...	...	...	...	...	6
Arkansas	6	4	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Oklahoma	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Indian Territory	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
North Central Division:																			
Ohio	28	15	12	10	9	...	...	1	3	...	1	1	1	...	...	...	...	...	15
Indiana	8	7	2	2	1	...	...	...	1	...	...	...	...	...	1	...	...	...	4
Illinois	24	8	6	6	1	...	...	1	2	...	...	...	...	2	1	...	...	...	13
Michigan	8	5	3	2	2	...	...	1	2	...	...	...	...	...	...	...	...	...	5
Wisconsin	7	...	5	5	1	...	...	2	1	...	...	...	...	...	...	...	...	...	1
Minnesota	7	3	3	3	...	...	...	...	1	...	...	...	...	...	...	1	...	...	4
Iowa	16	12	4	4	2	...	...	...	...	...	1	...	...	...	...	...	...	...	14
Missouri	21	6	7	7	6	...	...	3	1	...	...	...	...	...	...	...	...	...	10
North Dakota	1	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
South Dakota	5	1	2	2	1	...	...	1	1	...	...	...	...	...	...	...	...	...	3
Nebraska	6	4	2	2	...	...	...	1	1	...	...	...	...	...	1	...	...	...	4
Kansas	12	7	3	4	2	...	...	2	1	...	...	...	...	...	...	...	...	...	9
Western Division:																			
Montana	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Wyoming	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Colorado	1	3	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Utah	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nevada	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Idaho	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Washington	6	1	2	2	2	...	...	1	...	...	...	...	...	...	...	...	...	...	3
Oregon	6	4	2	2	2	...	...	...	1	...	...	...	...	...	...	...	...	...	3
California	4	3	5	3	2	1	1	...	...	...	...	...	...	...	...	...	...	...	4

Language requirements for admission to B. S. course.

State or Territory.	Institutions with B. S. courses included.	Institutions requiring Latin.	Institutions requiring Greek.	Institutions requiring a modern language.	Institutions requiring Latin or Greek.	Institutions requiring Latin or a modern language.	Institutions requiring Greek or a modern language.	Institutions requiring Latin or Greek or a modern language.
United States	318	176	7	123	5	28	4	4
North Atlantic Division	51	17	1	28	2	10	2	1
South Atlantic Division	32	15	2	4	1	2	.....	.....
South Central Division	62	30	1	8	.....	.....	.....	.....
North Central Division	137	97	2	70	2	10	2	3
Western Division	36	17	1	13	.....	6	.....	.....
North Atlantic Division:								
Maine	2	1	.....	1	.....	.....	.....	.....
New Hampshire	2	.....	.....	1	.....	.....	.....	.....
Vermont	2	1	.....	1	.....	.....	.....	.....
Massachusetts	9	4	.....	6	.....	1	1	.....
Rhode Island	2	.....	.....	1	.....	1	.....	.....
Connecticut	2	1	.....	2	.....	.....	.....	.....
New York	14	4	1	11	1	5	1	.....
New Jersey	2	1	.....	1	.....	.....	.....	.....
Pennsylvania	16	5	.....	4	1	3	.....	1
South Atlantic Division:								
Maryland	5	3	1	1	.....	1	.....	.....
District of Columbia	1	.....	.....	1	.....	1	.....	.....
Virginia	5	1	1	.....	.....	.....	.....	.....
West Virginia	1	1	.....	.....	.....	.....	.....	.....
North Carolina	7	3	.....	.....	1	.....	.....	.....
South Carolina	5	4	.....	.....	.....	.....	.....	.....
Georgia	4	1	.....	.....	.....	.....	.....	.....
Florida	4	2	.....	2	.....	.....	.....	.....
South Central Division:								
Kentucky	10	3	.....	1	.....	.....	.....	.....
Tennessee	17	8	.....	3	.....	.....	.....	.....
Alabama	5	2	.....	.....	.....	.....	.....	.....
Mississippi	7	4	.....	1	.....	.....	.....	.....
Louisiana	3	2	.....	.....	.....	.....	.....	.....
Texas	9	6	1	2	.....	.....	.....	.....
Arkansas	8	3	.....	1	.....	.....	.....	.....
Oklahoma	2	1	.....	.....	.....	.....	.....	.....
Indian Territory	1	1	.....	.....	.....	.....	.....	.....
North Central Division:								
Ohio	25	17	.....	13	.....	1	1	2
Indiana	12	9	1	5	.....	.....	.....	.....
Illinois	22	14	.....	8	2	2	.....	1
Michigan	11	8	1	6	.....	1	.....	.....
Wisconsin	4	1	.....	3	.....	1	.....	.....
Minnesota	3	2	.....	.....	.....	1	.....	.....
Iowa	18	13	.....	12	.....	3	1	.....
Missouri	14	9	.....	6	.....	.....	.....	.....
North Dakota	3	2	.....	.....	.....	.....	.....	.....
South Dakota	5	5	.....	4	.....	.....	.....	.....
Nebraska	8	7	.....	6	.....	1	.....	.....
Kansas	12	10	.....	7	.....	.....	.....	.....
Western Division:								
Montana	2	1	.....	1	.....	.....	.....	.....
Wyoming	1	1	.....	.....	.....	.....	.....	.....
Colorado	5	1	.....	3	.....	2	.....	.....
New Mexico	2	.....	.....	1	.....	.....	.....	.....
Arizona	1	.....	.....	.....	.....	1	.....	.....
Utah	3	.....	.....	1	.....	.....	.....	.....
Nevada	1	.....	.....	1	.....	.....	.....	.....
Idaho	1	.....	.....	.....	.....	.....	.....	.....
Washington	5	3	.....	1	.....	1	.....	.....
Oregon	7	4	.....	2	.....	1	.....	.....
California	8	7	1	3	.....	1	.....	.....

Language requirements for admission to Ph. B. course.

State or Territory.	Number of institutions with Ph. B. courses included.	Number of institutions requiring Latin.	Number of institutions requiring Greek.	Number of institutions requiring Latin or Greek.	Number of institutions requiring 1 modern language.	Number of institutions requiring 2 modern languages.
United States	123	100	7	12	61	6
North Atlantic Division	19	12		3	9	2
South Atlantic Division	4	4	1			
South Central Division	16	12	1	2	4	1
North Central Division	71	60	4	7	41	2
Western Division	13	12	1		7	1
North Atlantic Division:						
Vermont	1	1				
Massachusetts	2	1			1	1
Rhode Island	1				1	
Connecticut	2	2			2	
New York	8	5		2	4	1
Pennsylvania	5	3		1	1	
South Atlantic Division:						
Virginia	1	1				
North Carolina	2	2	1			
Georgia	1	1				
South Central Division:						
Kentucky	2	2	1			
Tennessee	3	3		1	1	
Alabama	1	1				
Mississippi	2	2				1
Louisiana	1	1			1	
Texas	2	1		1	1	
Arkansas	4	2			1	
Oklahoma	1	1				
North Central Division:						
Ohio	21	18		1	10	2
Indiana	4	4	1		3	
Illinois	7	6		1	6	
Michigan	7	5	1	2	5	
Wisconsin	1	1			1	
Minnesota	2	2			1	
Iowa	15	12	1	1	9	
Missouri	5	5			2	
South Dakota	3	3	1		1	
Nebraska	3	2		1	1	
Kansas	3	2		1	2	
Western Division:						
Montana	2	2				
Colorado	3	3			3	
Idaho	1	1				
Washington	2	2			1	1
Oregon	2	2			1	
California	3	2	1		2	

Language requirements for admission to B. L. course.

State or Territory.	Institutions with B. L. course included.	Institutions requiring Latin.	Institutions requiring Greek.	Institutions requiring modern language.[1]	Institutions requiring modern languages.[2]	Institutions in which Latin is optional with a modern language.	Institutions requiring Latin and a modern language.	Institutions in which Greek is optional with a modern language.	Institutions in which Latin or Greek is optional with a modern language.
United States	98	67	2	38	8	6	32	1	3
North Atlantic Division	12	8	.....	3	4	1	4	1	1
South Atlantic Division	5	2	.....	.....	.....	.....	.....	.....	.....
South Central Division	14	11	1	2	.....	.....	.....	.....	1
North Central Division	52	36	1	27	2	3	22	.....	1
Western Division	15	10	.....	6	2	2	6	.....	.....
North Atlantic Division:									
Maine	1	1	.....	.....	.....	.....	.....	.....	.....
New Hampshire	1	1	.....	1	.....	.....	1	.....	.....
Massachusetts	3	1	.....	1	.....	.....	.....	1	.....
Connecticut	1	1	.....	1	.....	.....	1	.....	.....
New York	4	2	.....	.....	3	.....	1	.....	1
New Jersey	1	1	.....	.....	1	.....	1	.....	.....
Pennsylvania	2	1	.....	.....	.....	1	.....	.....	.....
South Atlantic Division:									
Maryland	1	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	2	1	.....	.....	.....	.....	.....	.....	.....
Florida	2	1	.....	.....	.....	.....	.....	.....	.....
South Central Division:									
Kentucky	4	3	.....	.....	.....	.....	.....	.....	.....
Tennessee	3	3	.....	.....	.....	.....	.....	.....	.....
Alabama	1	1	1	.....	.....	.....	.....	.....	.....
Mississippi	1	1	.....	.....	.....	.....	.....	.....	.....
Texas	3	1	.....	2	.....	.....	.....	.....	1
Arkansas	2	2	.....	.....	.....	.....	.....	.....	.....
North Central Division:									
Ohio	9	7	.....	6	1	.....	6	.....	1
Indiana	1	1	.....	1	.....	.....	1	.....	.....
Illinois	11	6	.....	4	1	.....	4	.....	.....
Michigan	5	2	.....	4	.....	1	2	.....	.....
Wisconsin	3	2	.....	2	.....	1	2	.....	.....
Minnesota	3	2	.....	2	.....	1	1	.....	.....
Iowa	5	4	.....	2	.....	.....	2	.....	.....
Missouri	7	6	1	2	.....	.....	2	.....	.....
North Dakota	1	.....	.....	1	.....	.....	.....	.....	.....
South Dakota	2	2	.....	1	.....	.....	1	.....	.....
Kansas	5	4	.....	2	.....	.....	1	.....	.....
Western Division:									
Wyoming	1	1	.....	.....	.....	.....	.....	.....	.....
Colorado	2	2	.....	1	.....	.....	1	.....	.....
Utah	1	.....	.....	.....	.....	1	.....	.....	.....
Washington	1	.....	.....	.....	.....	1	.....	.....	.....
Oregon	4	3	.....	2	1	.....	2	.....	.....
California	6	4	.....	3	1	.....	3	.....	.....

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
1	Blount College, Blountsville, Ala.	A. B. and B. S.	Lessons in English	
2	Howard College, East Lake, Ala.	A. B. and B. S.	Gram.; comp	Latin: Coy's Lessons; comp.
3	Southern University, Greensboro, Ala.	A. B	Gram.; comp.; el. rhetoric	Latin: Gram.; reader; Cæsar. Greek: Gram.
		B. S. and Ph. B.	Same as for A. B. course	Latin: Same as for A. B. course.
4	Spring Hill College, Spring Hill, Ala.	A. B	Gram. (Kerney, Murray); Sketch Book; Gray's Elegy; comp.	Latin: Gram. (Yenni); Historia Sacra; Cicero, letters; Cæsar; Nepos; Phædrus. Greek: Gram. (Yenni); Æsop; Lucian.
5	University of Alabama, University, Ala.	A. B. and B. L.	Gram.; comp	Latin: Gram.; Cæsar, 3 bks; Virgil, 3 bks; Cicero; comp. Greek: Gram.; Analysis, 2 bks.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course (optional).
		Engineering.	do	
6	University of Arizona, Tucson, Ariz.	B. S., including engineering.	Gram.; comp.; el. rhetoric; English classics.	Latin: Collar and Daniell's Beginner's Book (optional with German, French or Spanish).
7	Arkadelphia Methodist College, Arkadelphia, Ark.	A. B., B. S. and Ph. B.	Gram. (Harvey); selections.	
8	Arkansas College, Batesville, Ark.	A. B. and B. S.	Gram.; comp	Latin: Gram.; Cæsar, 3 bks.; comp.
9	Arkansas Cumberland College, Clarksville, Ark.		Gram.; analysis; rhetoric; English classics.	Latin: Beginner's Book; Cæsar; Virgil.
10	Hendrix College, Conway, Ark.	A. B	Gram.; analysis; American literature.	Latin: Gram.; Cæsar; Cicero; comp. Greek: First lessons; Anabasis.
		Ph. B. and B. L.	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	do	
11	Arkansas Industrial University, Fayetteville, Ark.	A. B	Rhetoric (Raub); comp.; Scott's Talisman; Julius Cæsar; Midsummer Night's Dream.	Latin: Collar and Daniell's Beginner's Book; Cæsar, 4 bks.
		B. S. and engineering.	Same as for A. B. course	
12	University of Little Rock, Little Rock, Ark.	A. B	Gram. (Longman); comp. (Keeler and Davis); rhetoric (Williams); English and American literature.	Latin: Gram.; Cæsar, 5 bks; Cicero, 5 orations; comp. Greek: Gram.; Gleason's Gate to Anabasis.
		B. L	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	do	
13	Philander Smith College, Little Rock, Ark.	A. B	Comp. (Chittenden)	Latin: Gram.; Bellum Helvetium; Cæsar, 4 bks.; Cicero; Virgil's Æneid; comp. Greek: Gram.; Anabasis, 3 bks; Iliad, 3 bks.; comp.
		B. S. and Ph. B.	Same as for A. B. course	Latin: Same as for A. B. course.
14	Mountain Home Baptist College, Mountain Home, Ark.	A. B. and B. S.	Gram. (Kerl); comp	Latin: Gram. and reader (Bingham).
		Ph. B	Same as for A. B. course	
15	Searcy College, Searcy, Ark.	A. B	Gram.; comp.; higher English.	Latin: Gram
		B. S	Same as for A. B. course	

universities, colleges, and schools of technology.

Modern languages.	History.	Mathematics.	Science.	
.....	El. hist. of U. S.....	El. arith	Geography; drawing.	1
.....	U. S. hist.; gen. hist...	Arith.; algebra, through quadratics.	Phys. geog.....	2
.....	U. S. hist.; England.	Arith.; algebra.....	Descrip. geog.....	3
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Kerney, Hazzard).	Arith	Geography	4
.....	American hist. (Eggleston).	Arith.; algebra, to quadratics.	Polit. geog.	5
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	....do.....	....do.....	....do.....	
German, French or Spanish: Gram.; simple prose translation. (Optional with Latin.)	Gen. hist. (Myers); U. S. hist.; civil government.	Arith.; algebra, through quadratics; plane geomtry.	Polit. and phys. geog.; el. physics (Gage).	6
.....	U. S. hist. (Anderson.)	Arith. (Ray's Practical).	Geography	7
.....	Roman hist.; U. S. hist.	Arith.; algebra, through quadratics.	.....	8
.....	U. S. hist.; civil government.	Arith.; algebra; geometry.	Geog.; physiology; physics.	9
.....	U. S. and gen. hist.; civil government.	Arith.; algebra; plane geometry.	.....	10
.....	Same as for A. B. course.	Same as for A. B. course.	.....	
.....	....do.....	....do.....	.....	
.....	U. S. hist. (Chambers); gen. hist. (Barnes).	Arith.; algebra, through quadratics; plane geometry.	Geog.; physiology (Martin).	11
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Gen. hist. (Myers); civil government (Macy).	Arith.; algebra.....	Phys. geog.; physiology.	12
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	....do.....	....do.....	....do.....	
.....	Civil government (Young); gen. hist. (Myers).	Arith.; algebra; geometry.	Physiology (Steele); phys. geog.; physics.	13
French.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; England (Montgomery).	Arith.; algebra (Milne's High School)	Geog.....	14
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	History	Arith.; el. algebra....	.....	15
.....	Same as for A. B. course.	Same as for A. B. course.	.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
16	University of California, Berkeley, Cal.	A. B.....	Gram.; comp.; el. rhetoric; study of the following: Lady of the Lake, Gayley's Classic Myths in English Literature or Bulfinch's Age of Fable, The Alhambra, Sir Roger de Coverley, L'Allegro, Il Penseroso, Winter, Tam O'Shanter, The Deserted Village, The Winter Morning Walk, The Cotter's Saturday Night, The Ancient Mariner, Horatius, Byron (Syle's From Milton to Tennyson), Merchant of Venice, Julius Cæsar, Macaulay's Warren Hastings.	Latin: Cæsar, Gallic War, Books I-IV; Cicero, the four Catilinarian orations; translation into Latin of simple English sentences; translation of Latin of average difficulty, as, Cicero, Pro Archia Poeta, De Imperio Cn. Pompei, and Virgil's Æneid, Books I-VI; translation into Latin of brief connected narrative. Greek: Xenophon's Anabasis, Books I-IV, or Goodwin's Greek Reader, pp. 30-111; translation at sight of easy passages from Xenophon; translation into Greek of English sentences and connected prose; Homer's Iliad, Books I-III.
		B. L. and B. S.	Same as for A. B. course. Also Burke's Speech before the Election at Bristol, Macaulay's First Speech on the Reform Bill, Webster's Reply to Hayne, Milton's Lycidas and Sonnets, Dryden's Alexander's Feast and the Character of a Good Parson, Pope's Epistles to Jervas and Richard Boyle, Johnson's Vanity of Human Wishes, Gray's Elegy and the Bard, Keats's The Eve of St. Agnes and The Nightingale, Shelley's The Cloud, The Skylark, and Sonnets on the Nile, Wordsworth's Ode on the Intimations of Immortality, selections from Clough, Arnold's The Scholar Gipsy, Browning's A Transcript from Euripides, Tennyson's The Passing of Arthur, Comus, Vision of Sir Launfal, Thackeray's The Newcomes. (Optional with French or German.)	Latin: Same as for A. B. course.
		B. S. in agr. or chemistry.	Same as for B. L. and B. S. courses, except that the second part is optional with either Latin or modern languages.	Latin: Cæsar, Gallic War, Books I-IV; Cicero, 4 Catilinarian orations; translation into Latin of simple English sentences. (Optional with second part of English requirement.)
		B. S. in mechanics, mining, or C. E.	Same as for B. S. in agriculture or chemistry.	Same as for B. S. in agriculture or chemistry.
17	Pomona College, Claremont, Cal.	A. B.....	Elements of rhetoric.....	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid (6 books) and Eclogues; synonyms; prosody; antiquities; mythology. Greek: Anabasis, 4 bks.; Iliad, 3 bks.; prose.
		B. L. or B. S.	Elements of rhetoric; 19th century literature; American literature.	Latin: Same as for A. B. course.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	A knowledge of the principles of Federal, State, or local government; Greek history, to the death of Alexander (Smith, Myers); Roman history, to the death of Commodus (Liddell).	Algebra, through quadratics; plane geometry.	Elements of physics, with adequate experimental illustration.	
French or German: Ability to read at sight simple prose, and to translate correctly simple English into French or German; a knowedge of the principles of grammar. (Optional with part of English requirements.)	Principles of Federal, State, or local government. Mediæval and modern history (Myers) and Greek and Roman history are optional with two of the following: Advanced mathematics, chemistry, botany and geology.	Same as for A. B. course. Optional: Solid geometry, plane trigonometry, advanced algebra.	El. physics. Optional: El. chemistry, botany, zoology.	16
Same as for B. L. and B. S. courses, which is optional with second part of English requirement.	Principles of Federal, State, or local government.	Same as for A. B. course. Optional with botany or zoology: Ad. math.	El. physics and el. chemistry. Optional with advanced math: Botany or zoology.	
Same as for B. S. in agriculture or chemistry.	Same as for B. S. in agriculture or chemistry.	Same as for A. B. course and solid and spherical geometry.	El. physics, el. chem.	
German.....	Mediæval and modern history; Roman history; ancient history.	Algebra, through ratio and proportion; plane and solid geom.	.....	17
.....do.....	Same as for A. B. course and English history.	Same as for A. B. course.	Elements of physics.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
18	Pierce Christian College, College City, Cal.	A. B. or B. S.	Grammar; literature.....	Latin lessons.....
		A. B.....	Comp. (Chittenden); rhetoric (Kellogg, Waddy); literature: Alhambra; Sir Roger de Coverley; Macaulay's Warren Hastings; Lady of the Lake; Shakespeare's Julius Cæsar and Merchant of Venice; L'Allegro; Il Penseroso; Winter; Tam O'Shanter; Deserted Village; Winter Morning Walk; Cotter's Saturday Night; Ancient Mariner; selections from Byron; Horatius; Gayley's Classic Myths in English literature.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; translation of easy Latin at sight; Virgil's Æneid, 6 bks.; translation of Latin of moderate difficulty; Latin prose comp. (Jones). Greek: Gram. (Goodwin); Anabasis, I-IV; translation of easy Attic prose at sight; Greek prose comp.; Homer's Iliad, Bks. I-III, or Odyssey, Bks. I-IV.
		Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. S.....	.....do.....	Latin: Gram.; Cæsar's Gallic War, Bks. I-IV; Cicero, 6 orations; translation of easy Latin at sight.
19	University of the Pacific, College Park, Cal.	B. L.....	Same as for A. B. course; also Burke's speech before the election at Bristol; Macaulay's First Speech on the Reform Bill; Webster's reply to Hayne; Milton's Lycidas and Sonnets; Dryden's Alexander's Feast and Character of a Good Parson; Pope's Epistles to Jervas and Richard Boyle; Johnson's Vanity of Human Wishes; Gray's Elegy and The Bard; Keats's The Eve of St. Agnes and The Nightingale; Shelley's The Cloud; The Skylark and the Sonnets on the Nile; Wordsworth's Ode on the Intimations of Immortality; selections from Clough; Arnold's The Scholar Gipsy; Browning's A Transcript from Euripides; Tennyson's The Passing of Arthur.	Same as for B. S. course..
20	Occidental College, Los Angeles, Cal.	A. B.....	Lessons in English (Lockwood).	Latin: Cæsar, 4 bks.; Virgil, 6 bks.; Cicero; Sallust. Greek: Greek Lessons (White); Anabasis, I-IV; Iliad, I-III. (Required for classical course.)
21	St. Vincent's College, Los Angeles, Cal.	A. B.....	English gram. and comp..	Elements of Latin and Greek.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. history; civics..	Arithmetic; algebra..	Physiology	18
.....	Hist. of Greece and Rome; civil government in the U. S.	Algebra, through quadratics; plane geom. (complete).	Physical geog.; physics.	
German: Gram.; writing script; Grimm's Mærchen; Ger. comp. (Harris); Schiller's Maria Stuart; Lessing's Minna Von Barnhelm.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
Same as for Ph. B. course.	.....do	.....do	Phys. geog.; physics; chem. (Smith's Richter); botany, physiology (Huxley), or el. biology.	19
.....do	.....do	.....do	Phys. geog.; physics; botany, physiology (Huxley), or el. biology.	
A modern language required for Latin scientific and English courses.	General hist. (Myers)	Algebra (Wentworth); plane geom. (Wentworth); solid geom. (Wentworth).	Shaw's Physics, by experiment. Botany required for Latin scientific and English courses.	20
.....	U. S. hist.....	Arithmetic	.....	21

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
		A. B.....	Gram. Whitney's rhetoric; Lady of the Lake; Alhambra; Sketch Book.	Latin: Gram. and reader (Harkness); Cæsar's Commentaries; prose comp.; Cicero; Virgil's Æneid, I-VI, and Eclogues and Georgics; Latin literature. Greek: Reader and gram.; Anabasis, I-IV; prose comp. (Jones); Iliad; sight reading and hist. of Greece.
		B. S.....	Same as for A. B. course..	Latin: Gram. and reader (Harkness); Cæsar's Commentaries; prose comp.; Cicero.
		B. L.....	Same as for A. B. course and Smith's Synopsis; Underwood's American Authors; Webster's First Bunker Hill Oration; Longfellow's Evangeline; Wallace's Ben-Hur; Lowell's Sir Launfal; Merchant of Venice; Twelfth Night; L'Allegro; Il Penseroso; Comus; Lycidas; Sir Roger de Coverley; Macaulay's Essays on Milton and on Addison; Scott's Abbot; Hawthorne's Marble Faun; David Copperfield; Newcomes; Chaucer's Prologue and two of Canterbury Tales; Spenser's Faerie Queene; hist. of Eng. lang. (Meiklejohn).	.....
22	California College, Oakland, Cal.			
23	Throop Polytechnic Institute, Pasadena, Cal. *a*	A. B.....	Alhambra; The Sketch Book; Courtship of Miles Standish; Sir Roger de Coverley; Scott's Marmion; Merchant of Venice; Julius Cæsar; George Eliot's Silas Marner; rhetoric; comp. Optional: Biography, history, and mythology in poems from Milton to Tennyson; American literature.	Optional—Latin: Translation from English into Latin and from Latin into English; readings from Eutropius, Nepos, Cæsar, Gellius, Cicero, Livy, Virgil's Æneid. Greek: Comp.; Anabasis; translation into English.
24	Leland Stanford Junior University, Stanford University, Cal. *b*	A. B.....	1. Merchant of Venice; Julius Cæsar; Lady of the Lake; Snow Bound; Evangeline; Sketch Book; Newcomes; Sir Roger de Coverley; Quentin Durward; Macaulay's Essay on Addison and Life of Johnson; comp. (2). 2. Burke's Speeches on the Amer. War and Letter to the Sheriffs of Bristol, or Genung's Rhetorical Analysis; Hale's Longer English Poems, omitting Shelley's Adonais.	El. Latin (2); Cæsar's Gallic War, I-IV; Cicero against Catiline, I, II. Advanced Latin (2): Cicero, 5 orations; Virgil's Æneid, 6 bks.; comp. Greek (2): Gram.; Anabasis, I-IV; Iliad, I-II; prose comp. (Collar & Daniell); translation at sight of easy prose.
25	Pacific Methodist College, Santa Rosa, Cal.	A. B., B. S. and C. E.	Higher lessons in English (Reed and Kellogg); word analysis (Swinton); rhetoric (Reed and Kellogg).	Latin: Cæsar; Virgil; prose comp. Greek: Gram. (Goodwin).

a Candidate must select 8 of the optionals.
b English (1) only is required. Candidate must select from other subjects a sufficient number to make 12 credits. All count for 1 credit except where otherwise indicated.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Old Testament hist...	Algebra; geometry...	Physics (Gage); phys. geog.	
French: Gram. and literature and texts. (Optional with Greek.)	Old Testament and general hist.	Same as for A. B. course.	Physics (Gage); phys. geog.; chemistry; botany; physiology; polit. econ.	
.....	Same as for B. S. course.	.....do.....	Physics (Gage); phys. geog.; polit. econ. (Chapin); astron.; geology; physiology; botany.	22
Optional—German: Wilhelm Tell; Iphigenia auf Tauris; hist. of Ger. lang. and lit. French: Gram. (Keetel); Modern French Readings (Knapp); syntax; original theses.	Optional: Greek and Roman hist. (Myers and Allen); mediæval and modern hist. (Myers).	Algebra to quadratics (Wentworth); plane geom. (Wentworth). Optional: Higher algebra (Wells); solid geom. (Wentworth).	Optional: Phys. geog.; botany (McClatchie, Oel, Bessey, Campbell); zoology (Colton, Bell's Comp. Anat., etc.); physics (Balfour Stewart); gen. chem. (Storer and Lindsay).	23
Spanish, French (2), German (2).	Amer. hist. (Sheldon's Studies, Thwaite's Colonies, Macy's Our Government); hist. of England (Gardiner, Tonblanque); Grecian and Roman hist.	El. algebra (2); plane geom.; solid geom. (½); plane trig. (½); advanced algebra.	Physics (Gage); chem. (Remsen); physiology (Martin); botany (Bessey); zoology (Marshall and Hurst); drawing.	24
.....	Eng. hist. (Montgomery).	Arith. (Wentworth's Higher); algebra (Wentworth).	Physiology	25

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
26	University of Southern California, University, Cal.	A. B.	Gram.; analysis; rhetoric; comp.; studies in Longfellow, Bryant, Whittier, Lowell, Irving, Hawthorne, Scott, Milton, Burns, Goldsmith, Wordsworth, Addison, Macaulay.	Latin: Cornelius Nepos; Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid, 6 bks.; prose comp. Greek: Anabasis, bks. I-III; Iliad, I-III; prose comp.
		Ph. B.	Same as for A. B. course.	Greek: Same as for A. B. course.
		B. S	do	Latin: Same as for A. B. course.
		B. L.	do	
27	San Joaquin Valley College, Woodbridge, Cal.	A. B.	Gram.; rhetoric; mythology; Scott, Whittier, Irving, Goldsmith.	Latin: Cæsar, Cicero. Greek: Anabasis; Herodotus.
		B. S	Same as for A. B. course and critical study of English and American authors.	
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
28	University of Colorado, Boulder, Colo.	A. B	Equivalent of the requirements of Commission of New England Colleges.*a*	Latin: Gram.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 7 orations; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B.S., C.E., and E.E.	Same as for A. B. course and rhetoric.	Three years of either Latin or German; or division of the 3 years between the two languages, giving at least 1 year to German.
		A. B	Requirements of Commission of New England Colleges.*a*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; prose comp. (Daniell); translation at sight of easy Latin prose. Greek: Gram.; 4 bks. of the Anabasis, or 3 bks. and Cooke's Selections from the Cyropædia; Iliad, 3 bks.: translation at sight from Xenophon and Homer; prose comp. (Collar and Daniell).
29	Colorado College, Colorado Springs, Colo.	Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S	do	Latin: Gram.; prose comp.; Cæsar, 4 bks.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; Eng. hist.; hist. of France, Germany and Rome.	Arith.; algebra through quadratics; plane and solid geom.; el. conics.	El. zoology (Colton and Packard); hist. botany (Spalding); physics (Gage); phys. geog. (Houston and Eclectic); physiology (Martin).	
German: Gram. (Joynes-Meisner); Studien und Plauderein; Max Muller's Deutsche Liebe; Wilhelm Tell.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	36
Same as for Ph. B. course	....do	....do	....do	
Same as for Ph. B. course and French: Gram. (Edgren); Petites Causeries; Daudet's Choix d'Extraits; Hugo's La Chute; Racine's Athalie.	....do	....do	....do	
.....	Ancient, mediæval, modern and U. S. hist.	Algebra; plane geom.	Zoology; physics; botany; phys. geog.; chemistry; astron.	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	27
.....	....do	....do	....do	
German or French, 1 yr.....	Gen. history	Algebra through quadratics; plane geometry.	Physics, 1 yr	
Same as for A. B. course	....do	Same as for A. B. course.	Physics, 1 yr.; chem., 1 yr.; biology, 1 yr. or (biology ½ yr. and botany ½ yr.; or physiography ½ yr. and geology ½ yr.); freehand and mech. drawing.	36
See classical languages	....do	Same as for A. B. course and solid geom. or plane trig.	Same as for Ph. B. course.	
A knowledge of French or German sufficient for reading easy prose at sight.	Hist. of Roman republic; hist. of Greece (Myers, Pennell, Oman).	Algebra through quadratics; el. plane geom.	.....	
Same as for A. B. course.....	Outline knowledge of American or English hist.	Same as for A. B. course.	Physics (Gage); chemistry (Williams); botany (Gray); Physiology (Martin's Briefer Course).	29
German: Reader (Joynes); Chamisso's Peter Schlemihl; Schiller's Jungfrau von Orleans and Don Carlos; Jensen's Braune Erica; Minna von Barnhelm; Storm's Immensee; Freytag's Journalisten. French (Elementary).	Same as for Ph. B. course.	Algebra; geometry, plane and solid; trigonometry, plane and spherical.	Same as for Ph. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
30	Presbyterian College of the Southwest, Del Norte, Colo.	A. B	Gram.; rhetoric; analysis; hist. of English lit.; hist. of American lit.	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Anabasis.
		Ph. B	Same as for A. B. course	Latin: Same as for A. B. course.
		B. L	do	Elementary Latin
31	College of the Sacred Heart, Denver, Colo.	A. B	Irving's Rip Van Winkle and Legend of Sleepy Hollow; Goldsmith's Deserted Village and Traveller; easier selections from Longfellow; comp.	Latin: Yenni's Syntax; Nepos; Cæsar; Cicero. Greek: Yenni's Syntax; gram
32	University of Denver, University Park, Colo.	A. B	Equivalent of the requirements of Commission of New England Colleges.a	Latin: Gram.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 7 orations; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		B. L	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	Same as for A. B. course and rhetoric.	3 years of Latin or German, or division of 3 years between the two languages.
23	Trinity College, Hartford, Conn.	A. B	Shakespeare's Merchant of Venice and Julius Cæsar; Goldsmith's Deserted Village; Scott's Marmion; Longfellow's Courtship of Miles Standish; Burke's Speech on Conciliation with America; Macaulay's Life of Samuel Johnson; Defoe's History of the Plague in London; Hawthorne's Twice Told Tales; Thackeray's The Newcomes; George Eliot's Silas Marner.	Latin: Gram.; Cæsar, Gallic War, 4 bks.; Virgil, Æneid, 6 bks., with prosody; Cicero, orations against Catiline and for Archias; prose comp. Greek: Gram. (Hadley or Goodwin); Anabasis, 4 bks.; Iliad, 3 bks., with prosody; prose comp. (Jones or White).
		B.S. in letters and science.	Same as for A. B. course	Latin: Same as for A. B. course.
		B.S. in science.	Johnson's English Words, and same as for A. B. course.	Latin: 6 books of Cæsar's Gallic War (or 3 books of Cæsar and 3 books of Virgil's Æneid); gram.; comp.
		B. L	Same as for A. B. course	Latin: Same as for A. B. course.
34	Wesleyan University, Middletown, Conn.	A. B	Requirements of Commission of New England Colleges.a	Latin: Gram.; Cæsar, Gallic War, Bks. I-IV; Cicero, 4 orations against Catiline and those for Archias and Manilian Law; Virgil, Æneid, 6 bks. and Eclogues; translation from Latin into English; from English into Latin. Greek: Gram. (Hadley or Goodwin); Anabasis, 4 bks.; Iliad, 3 bks.; translation at sight.
		Ph. B	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	do	

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U.S. and general hist.; civil government.	Algebra, plane geometry.	Science	30
German or Spanish ..	Same as for A. B. course.	Same as for A. B. course.	.....do	
.....	.....do	.....do	.....do	
.....	Modern history (Fredet).	Algebra to quadratics (Loomis).	.....	31
German or French, 1 yr.	Gen. history	Algebra through quadratics; plane geometry.	Physics, 1 yr.	32
Same as for A. B. course.	.....do	Same as for A. B. course.	Physics, 1 yr.; chem., 1 yr.; biology, 1 yr., or biology ½ yr. and botany ½ yr., or physiography ½ yr. and geology. ½ yr.; free-hand and mech. drawing.	
See Classical languages.	.....do	Same as for A. B. course and plane trig. or solid geometry.	Same as for B. L. course.	
.....	Roman history to the death of Marcus Aurelius; history of Greece.	Algebra through quadratics, and proportion, progression, and binomial theory; plane geometry.	.....	33
Elementary French or German.	Roman history to the death of Marcus Aurelius.	Same as for A. B. course.	.....	
.....do	History of U. S. (Johnston or Scudder).	Algebra to theory of equations; plane and solid geometry; plane trigonometry.	Elementary biology.	
.....do	.....	Same as for A. B. course.	.....	
.....	History of Rome to death of Marcus Aurelius (Allen); history of Greece to capture of Corinth (Myers); ancient geography (Tozer).	Algebra through quadratics; plane geometry.	.....	34
French or German, 2 yrs.	Same as for A. B. course.	Same as for A. B. course.	.....	
Same as for Ph. B. course.	.....	Same as for A. B. course. Also solid geometry; plane and spherical trigonometry; analytical geom.	Botany (Gray); phys. geog. (Geikie); chem. (Storer and Lindsay); physics (Gage); 30 experiments.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
35	Yale University, New Haven, Conn.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.: Cicero, orations against Catiline and for Archias and either the Milo, or the Manilian Law, or the Cato Major, or the Marcellus and the 14th Philippic; Virgil's Æneid, 6 bks., including prosody, and Bucolics or 8th and 9th bks. of Æneid; Ovid, Metamorphoses; translation at sight from Nepos and Cæsar; translation into Latin of connected passages of English prose. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks., with prosody; translation from Greek into English and English into Greek.
		Ph. B.	Same as for A. B. course and Essentials of English grammar (Whitney).	Latin: Gram.; Cæsar's Gallic War, 4 bks.; Virgil's Æneid, 3 bks.; translating English into Latin.
36	Delaware College, Newark, Del.	A.B. (classical).	Orthography; reading; grammar.	Latin: Gram.; reader; Sallust; Cæsar or Virgil. Greek: Gram.; reader; Anabasis, Bks. I-II.
		A.B. (Latin scien.).	Same as for classical course.	Latin: Same as for classical course.
		B. C. E., B.M.E., B.E.E., and Agr.	....do....	----------
37	Columbian University, Washington, D. C.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram. (Harkness); Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Sallust's Conspiracy of Catiline; Ovid's Metamorphoses, 2 bks.; Latin comp. Greek: Gram. (Goodwin or Hadley); Greek Reader (Goodwin) or Anabasis, 4 bks.; Iliad, 3 bks.; prose comp. (Jones).
		B. S.	Same as for A. B. course..	Latin: Same as for A. B. course (optional with German).
		B. S. in scien. school.	Gram.; rhetoric.....	----------
38	Georgetown University, Washington, D. C.	A. B.	Higher gram. (Meiklejohn's English Language); comp.; Hawthorne's Twice Told Tales; Longfellow's Hiawatha; Scott's Ivanhoe; Irving's Sketch Book; Lady of the Lake; Longfellow's Evangeline; Vicar of Wakefield; Wiseman's Fabiola; Addison's Sir Roger de Coverley; Ruskin's Sesame and Lilies; Thackeray's Henry Esmond; Newman's Callista.	Latin: Gram.; prosody (Casserly); comp.; Nepos, Lives to end of life of Alcibiades, life of Atticus; Cæsar, 2 bks.; Ovid's Metamorphoses, 1,000 lines; Cicero, letters, 500 lines, 4 orations; Virgil's Æneid, 3 bks. Greek: Gram.; comp.; Anabasis, Bks. I-II; Lucian, 6 dialogues; Iliad, 2 bks., or Odyssey, 3 bks.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French or German: Sufficient knowledge to translate from French or German into English, and vice versa (about 1 yr.'s work).	Roman history to death of Augustus; Greek history.	Algebra; plane geometry.	.....	35
German or French: Translations; gram.	History of England (Montgomery); hist. of U. S. (Johnston).	Algebra; plane geometry; solid and spherical geometry; trigonometry and use of logarithms.	Botany (Gray's Elements).	
.....	History of U. S.....	Arithmetic; algebra through quadratics; plane geometry.	Physiology	36
.....	Same as for classical course.	Same as for classical course.	.....	
.....	.....do.....	.....do.....	.....	
French: Gram. (Edgren); 100 pages of Rollins's French Reader. Or German: Essentials of grammar and easy prose.	History of Rome (Allen, Myers, or Pennell); history of Greece (Myers or Schmitz).	Algebra through quadratics; plane geometry.	.....	37
French: Same as for A. B. course. German: Optional with Latin.	.....	Same as for A. B. course and solid geometry.	El. physics (Gage, Avery, &c.).	
French: Gram	American history....	Same as for A. B. course.	El. chemistry; el. physics; free-hand and mech. drawing.	
A modern language: Elements of grammar; translation into English at sight of simple prose; grammatical analysis.	History of the Oriental Nations, Greece and Rome (Myers); modern general history (Fredet).	Arithmetic; algebra through quadratics; plane and solid geometry.	.....	38

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
39	Gonzaga College, Washington, D. C.	A. B.....	Gram. (Weld and Quackenbos); Irving's Mythology; comp.	Latin: Gram. (Yenni); comp.; prosody (Casserly); Cæsar's Commentaries; Ovid's Metamorphoses and Elegies; scanning; Nepos. Greek: Gram. (Yenni); comp.; Xenophon's Cyropædia; Anabasis.
40	Howard University, Washington, D. C.	A. B.....	Orthography; gram.; comp.	Latin: Cæsar, 4 bks.; Cicero, 5 orations; Virgil's Æneid, 6 books; Jones' Prose Comp., 12 lessons. Greek: Boise and Pattengill's lessons; Anabasis, 4 bks.; Iliad, 3 bks.; prose com'p. (Woodruff).
41	John B. Stetson University, De Land, Fla.	A. B.....	Gram.; analysis; rhetoric; Robinson Crusoe; Courtship of Miles Standish; Pilgrim's Progress; Deserted Village and Traveller; Ivanhoe; Lady of the Lake; Sketch Book; Wonder Book and Tanglewood Tales; David Copperfield; Elegy in a Country Churchyard; Adam Bede; Locksley Hall and Enoch Arden; Vanity Fair; Evangeline; First Bunker Hill Oration; Ralph Waldo Emerson; Julius Cæsar; Aurora Leigh; Roger de Coverley; As You Like It; Marble Faun; Macbeth.	Latin: Gram.; Collar and Daniell's First Latin Book; prose comp. (Jones); Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid, 6 books; scansion. Greek: Gram. (Goodwin); Jones' Exercises in Greek prose; Anabasis, 4 bks.; Iliad, 3 bks.; scansion.
		B. S.....	Same as for A. B. course.	Latin: Same as for A. B. course.
42	Florida Conference College, Leesburg, Fla.	A. B.....	Orthography; grammar; language lessons.	Latin: Gram.; Cæsar (part). Greek: Beginners' Book (White).
		B. S. and B. L.	Same as for A. B. course.	.....
43	Florida Agricultural College, Lake City, Fla.	A. B.....	Hughes' Tom Brown at Rugby; Dickens' Child's History of England; Swiss Family Robinson; Fisk's Washington and His Country (Irving); Scott's Ivanhoe; Hawthorne's Wonderbook for Boys and Girls; gram. (Whitney and Lockwood); Lessons in English (Lockwood).	Latin: Collar and Daniell's First Latin Book; Gradatim.
		B. S. courses (agr., mech., and woman's).	Same as for A. B. course. Also: Irving's Sketch Book; Lady of the Lake; Whittier's Snow Bound; Dickens' Christmas Carols; Courtship of Miles Standish; Hawthorne's True Stories from New England History.	.....
44	Seminary West of the Suwanee River, Tallahassee, Fla.	A. B. and B. L.	Gram.; comp.; analysis; el. rhetoric.	Latin: Gram. and exercises; comp.; reader; Cæsar, 2 bks.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram. (Macmillan's course); reader.	Modern history (Fredet); ancient history (Fredet).	Algebra; arithmetic.	.....	39
.....	.....	Arithmetic; algebra through quadratics; plane geometry.	Elements of physics and chemistry; phys. geog.	40
.....	U. S. history (Eggleston); general history (Myers).	Arithmetic; algebra through quadratics; geometry (Wentworth).	.....	41
Read French or German at sight.	Same as for A. B. course.	Same as for A. B. course.	El. physics; human physiology.	
.....	U. S. history.....	Arithmetic; algebra to quadratics.	El. botany; physiology.	42
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	History of the U. S. (Hansell); Young's Government Text-Book.	Arithmetic; algebra..	Physical geog. (Maury).	43
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	English history; elementary civics.	Arithmetic; el. algebra.	Physiology; drawing; botany.	44

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
45	Rollins College, Winter Park, Fla.	A. B.	Hist. of English language; el. rhetoric; comp.; introduction to American literature.	Latin: Cæsar; comp. (Jones); Cicero's orations; Virgil's Æneid; prosody; mythology; sight reading. Greek: Comp.; Anabasis; Greek testament; Homer.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
46	University of Georgia, Athens, Ga.	A. B.	Gram.; comp.; Shakespeare's Julius Cæsar; Irving's Sketch Book; Dickens' David Copperfield.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 2 orations. Greek: Attic prose; rules of accent; Anabasis, bk. I.
		B. S., B. E., B. Agr.	Spelling; comp.	---do---
47	Atlanta University, Atlanta, Ga.	A. B.	Comp. (Kellogg); literature (Kellogg); Seven British Classics.	Latin: Gram.; Cæsar; Cicero's orations; Virgil's Æneid; Latin Prose (Daniell).
48	Morris Brown College, Atlanta, Ga.	A. B.	Rhetoric; English and American authors.	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis; Iliad.
49	North Georgia Agricultural College, Dahlonega, Ga.	A. B.	Gram.; spelling.	Latin: Gram. and reader; Cornelius Nepos. Greek: First Book in Greek.
50	Mercer University, Macon, Ga.	A. B.	Gram. (Whitney); comp.; literature.	Latin: Gram.; syntax; translation. Greek: Gram.; syntax; Anabasis, bks. I-II; translation.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
51	Emory College, Oxford, Ga.	A. B.	Gram	Latin: Cæsar's Gallic Wars; Cicero's orations. Greek: Gram.; Leighton's Greek lessons.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S	---do---	---do---
52	Nannie Lou Warthen College, Wrightsville, Ga.	A. B.	Gram. (Harvey); reading; spelling.	---do---
53	Young L. G. Harris College, Young Harris, Ga.	A. B.	Gram.; Seven American Classics; Seven British Classics.	Latin: Harkness' First Year's Course.
54	University of Idaho, Moscow, Idaho.	A. B. and Ph. B.	Orthography; gram.; comp.; Dickens' Child's History of England; Whittier's Snow Bound; Goldsmith's Deserted Village; Shakespeare's Julius Cæsar.	Latin: Tuell and Fowler's First Latin Book; Cæsar, 3 bks.; Cicero, 3 orations.
		B. S., B. C. E., B. E. M., and B. Agr.	Same as for A. B. and Ph. B. courses. Also, word analysis and elementary rhetoric.	---do---
55	Hedding College, Abingdon, Ill.	A. B.	English; analysis	Latin: Cæsar and prose comp.; Cicero; Virgil; sight reading and mythology. Greek: Anabasis; Iliad.
		B. S. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Chardenal; Trois Mois Sous la Neige (Porchat); Le Cid (Corneille); sight reading.	Roman history; civil government (Fiske); history of Greece.	Algebra; plane geometry (Wentworth); solid geometry.	Physiology (Martin); geology (Packard's Briefer Course).	45
Same as for A. B. course.	Roman hist.; civil gov't.; ancient hist.; modern hist.	Same as for A. B. course.	Same as for A. B. course. Also, phys. geog. (Houston); physics (Baker); astronomy (Steele).	
.....	.....	Arithmetic; algebra (Olney); plane geometry (Wentworth), bks. I-II.	.....	46
.....	.....	Same as for A. B. course.	.....	
.....	.....	Alegbra (Wells); plane geometry (Wentworth).	Phys. geog. (Monteith); physiology (Martin); botany (Gray); physics (Gage).	47
.....	Gen. history.....	Algebra; geometry..	Physiology; physics; botany.	48
.....	U. S. history.....	Arithmetic; elements of algebra and geometry.	Introductory science.	49
.....	.....	Arithmetic; algebra to quadratics; plane geometry, 2 bks.	.....	50
.....	.....	Same as for A. B. course.	.....	
.....	.....	Arith.; algebra to quadratics; geometry, bk. I.	.....	51
.....	.....	Same as for A. B. course.	.....	
.....	.....	..do.....	.....	
.....	History of Georgia (Smith).	Grammar school arithmetic (Wentworth).	Physiology; phys. geog. (Maury).	52
.....	U. S. history; history of Georgia (Evans).	Arith. (Robinson's Higher); algebra to quadratics (Robinson's elementary).	Physiology (Steele).	53
.....	U. S. history (Barnes); gen. history (Barnes).	Arith. (White); mental arith. (Stoddard); algebra, through quadratics (Milne's High School); plane and solid geom. (Wentworth).	Descriptive geog.; phys. geog. (Houston); physiology (Tracy); free-hand drawing.	54
.....	Same as for A. B. and Ph. B. courses.	Same as for A. B. and Ph. B. courses.	Same as for A. B. and Ph. B. courses.	
.....	U. S. history: gen. history; civics.	Algebra; plane and solid geometry.	El. physics; phys. geog.	55
German: Two years' work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
56	Illinois Wesleyan University, Bloomington, Ill.	A. B	Gram.; Dickens' Cricket on the Hearth; Burroughs' Sharp Eyes; Hawthorne's Tanglewood Tales, Part II; Carlyle's Heroes and Hero Worship; Orations of Webster and Hayne; Burke's American Taxation; Shakespeare's Othello; Bacon's Essays; Macaulay on Byron; Higher Lessons in English, Reed and Kellogg; rhetoric.	Latin: Gram.; Cæsar, 4 bks.; Cicero; Virgil, 3 bks. Greek: Gram.; Anabasis; Iliad, 3 bks.
		B. S	Same as for A. B. course. Also, English literature, Stopford Brooke's Primer.	Latin, Same as for A. B. course. Greek: Optional with German.
		Ph. B	Same as for B. S. course	Latin, Same as for A. B. course.
57	St. Viateur's College, Bourbonnais, Ill.	A. B	Gram., Harvey; comp.; higher English lessons (Reed and Kellogg); rhetoric, Coppens; History of English and American Literature, Jenkins; versification.	Latin: Gram., Bullion & Morris; Cæsar; Sallust; Virgil; prose comp.; Arnold; prosody, versification. Greek: First lessons in Greek, White.
58	Blackburn University, Carlinville, Ill.	A. B	Theme on a subject taken from the books in the Riverside Literature Series.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid, 6 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.
		B. S. and Ph. B.	Same as for A. B. course.	Latin, Same as for A. B. course.
59	Carthage College, Carthage, Ill.	A. B	Gram.; orthography; comp.; word analysis.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 3 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.; prose comp.
		B. S	Same as for A. B. course. Also, Longfellow's Evangeline; Tennyson's Lotus-Eaters; Cooper's Pilot; Dickens' Tale of Two Cities.	Latin, Same as for A. B. course.
		B. L	Same as for B. S. course	
60	University of Illinois, Champaign, Ill.	A. B	Requirements of Commission of New England Colleges; outline of American literature (Hawthorne and Lemmon).	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid, 6 bks.; prose comp. (Daniell). Greek: Gram.; prose comp. (Woodruff); Anabasis, 3 bks.; Iliad, 3 bks. Optional with [illegible].
		College of Engineering.	Part 1 of requirements of Commission of New England Colleges.(a)	Latin: Gram.; Viri Romae. Optional with a modern language.
		College of Science.	Same as for College of Engineering.	Same as for College of Engineering.
		College of Agriculture	do	
61	St. Ignatius College, Chicago, Ill.	A. B	Coppens' Practical Introduction to comp.; Irving's Rip Van Winkle and Legend of Sleepy Hollow; Goldsmith's Deserted Village and Traveller; Longfellow.	Latin: Gram., Yenni; comp.; Cæsar, 300 lines; Cicero. Greek: Gram., Yenni; Æsop; Herodes; Lucian.

a See page 456.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Gen. history (Myers); civil government (Fiske); U. S. history.	Algebra, through quadratics; arith.; plane geometry (Wentworth).	Physiology; zoology; el. physics (Avery); botany.	56
German: Gram.; comp.; classic authors. (Optional with Greek.)	Same as for A. B. course. Also, History of England (Montgomery).	Same as for A. B. course.	Physiology; zoology; physics; botany.	
German: Gram.; comp.; easy prose reading.	Same as for B. S. course.	.....do.....	Same as for B. S. course.	
.....	U. S. history (Hazzard); ancient hist. (Fredet).	Arith. (Robinson); algebra (Thompson); geometry (Robinson).	Phys. geog.; botany.	57
.....	U. S. history; general history; civics.	Arith.; algebra (Wentworth's School); plane geometry.	El. zoology, physiology, physics, and botany.	58
German: Gram.; ability to read easy Ger. prose at sight.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. history (Montgomery).	Arith.: algebra, through quadratics; plane and solid geometry.	El. physics (Carhart and Chute); phys., descrip., and polit. geog.	
.....	Same as for A. B. course. Also, gen. hist. (Myers).	Same as for A. B. course.	Same as for A. B. course. Also, el. zoology, botany, and physiology.	59
.....	Same as for B. S. course.	.....do.....	Same as for B. S. course.	
.....	English and U. S. history, or gen. hist., or Greek and Roman hist.	Algebra, through quadratics; plane geometry (Wentworth).	El. physics (Gage); two of the following: El. astronomy, el. botany, el. inorganic chemistry, el. physiology, and el. zoology. (Optional with Greek.)	
French: Gram.; Chardenal's French course. Or German: Gram.; Joynes' German Reader. (Optional with Latin.)	Same as for A. B. course.	Same as for A. B. course. Also, solid and spherical geometry (Wells).	Science as for A. B. course (required); also free-hand drawing.	60
Same as for College of Engineering.	.....do.....	Same as for College of Engineering.	Science as for A. B. course (required).	
.....	.....do.....	.....do.....	Same as for College of Science.	
.....	U. S. history (Sadlier); modern history (Fredet).	Arith. (Ray); algebra, through radical expressions.	El. phys. geog.....	61

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
62	University of Chicago, Chicago, Ill.	A. B.	Requirements of Commission of New England Colleges; *a* Primer of English Literature (Stopford Brooke); Foundations of Rhetoric (Hill).	Latin: Cæsar; Cicero; Virgil; Ovid; translations from English into Ciceronian Latin. Greek: Anabasis; Homer; gram.; translations from English into Xenophontic Greek and into Greek of sentences of average difficulty based upon the Anabasis.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	----do----	Latin: Translation at sight of narrative prose similar to that of Cæsar; translation into Latin of sentences based upon Cæsar's Gallic War. An additional amount of Latin to equal A. B. requirements may be substituted for part of the requirements in science.
63	Austin College, Effingham, Ill.	A. B. and B. S.	Gram.; comp	
64	Eureka College, Eureka, Ill.	A. B.	Grammar and composition (Southworth & Goddard); American Masterpieces; rhetoric (Genung); analysis (Meiklejohn); composition (Newcomer); classics.	Latin: Gram.; Viri Romæ; Nepos; Cæsar, 4 bks.; prose writing; sight reading. Greek: Gram.; Anabasis, 8 chapters of first book.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: El. gram.; ability to translate simple prose at sight. Or German: Proficiency in the elements of the language.	History of the U. S.; hist. of Greece to the death of Alexander; hist. of Rome to the death of Augustus.	Algebra, through quadratics; plane and solid geometry.	Physics, including elementary mechanics, sound, light, heat, electricity, and magnetism.	
French: Same as for A. B. course. Also, advanced gram.; translate standard French at sight; comp. on Colomba (Merimée); Pêcheur d'Islande (P. Loti); Graziella (Lamartine); Tartarin de Tarascon (Daudet); Eugenie Grandet (Balzac); Notre Dame de Paris (Hugo); French literature (Demogeot). Or German: As for A. B. course. Also, proficiency in the language and literature; ability to use the language effectively; essay on Nathan der Weise (Lessing); Hermann und Dorothea (Goethe); Harzreise (Heine); Frau Sorge (Sudermann).	Same as for A. B. course. Also Mediæval and modern history (Myers).	Same as for A. B. course.	Same as for A. B. course.	62
Same as for Ph B. course.	Same as for A. B. course.	....do....	Physics; el. chemistry (Remsen); el. biology (Boyer); physiography, el. geology, and el. astronomy (Young).	
.....	U. S. history; civil government.	Arithmetic; algebra..	.....	63
.....	....do....	Arith.; algebra through quadratics; plane and solid geometry (Wentworth).	Gen. biology; phys. geog.; el. physiology.	64
German: Gram. (Worman); reader (Joynes).	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
65	Northwestern University, Evanston, Ill.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks., or Viri Romæ; Cicero, 6 orations, including Manilian Law; Virgil, 8 bks. of the Æneid or 6 bks. of the Æneid and the Bucolics; comp. Greek: Gram.; Beginners' Greek Book (White); Anabasis, 4 bks.; Odyssey or Iliad, 1,800 lines; comp. (Jones or Woodruff.) (Optional with French or German or with elementary French and German.)
		Ph. B.	Same as for A. B. course.	Latin or Greek.
		B. S.	do.	Latin: Gram.; Cæsar, 4 bks., or Viri Romæ; comp. Or Greek: Same as for A. B. course. (Optional with French or German or el. French and el. German.)
		B. L.	do.	Latin or Greek or parts of Latin and Greek requirements may be offered.
66	Ewing College, Ewing, Ill.	A. B.	Gram. (Reed and Kellogg); rhetoric; literature: Miles Standish; Grandfather's Chair; Abbott's Life of Columbus; Enoch Arden; Deserted Village; Irving's Washington and His Country; Webster's Bunker Hill; Snow Bound; Julius Cæsar; Lady of the Lake; Sir Roger de Coverley; Merchant of Venice.	Latin: Tuell and Fowler; readings. Greek: Inductive method.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
67	Knox College, Galesburg, Ill.	A. B.	Gram. and comp. (Reed and Kellogg's Higher English Lessons); essay.	Latin: Gram. and reader; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 6 bks.; prose comp. Greek: Gram. (Goodwin); Lessons (Boise and Pattengill); Anabasis, 4 bks.; Lysias, 1 oration; prose comp.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	Essay on: Carlyle's Essay on Burns; Hawthorne's House of Seven Gables; Coleridge's Rime of the Ancient Mariner; Sir Roger de Coverley Papers; Merchant of Venice.	do.

a. See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram. (Whitney); comp. (Grandgent); modern prose and poetry, 400 pages; 5 standard authors, 1,200 pages. Or German: Gram. (Otis); 500 pages in Minna von Barnhelm, Tell, Riehl's Novellen, Hermann und Dorothea, &c. (Optional with Greek.)	U. S. history (Johnston); gen. hist. (Myers).	Algebra through quadratics (Wentworth); plane and solid geometry.	Physiology (Martin); phys. geog. (Maury); el. botany (Bergen) or el. zoology (Boyer) or el. physics (Gage).	
French or German, as above.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
French or German or el. French and el. German, as for A. B. course. (Optional with Latin or Greek.)	Same as for A. B. course. Also: Hist. of England and civil government (optional with 2 of the elective sciences).	Same as for A. B. course. Also: Algebra (Wentworth's college, chapters 16-27 and 29) and plane and spherical trigonometry (optional with physics, gen. chemistry or biology).	Physiology; phys. geog.; el. chemistry (Remsen). Also 3 of the following: el. botany, el. zoology, el. physics, el. astronomy (Young), el. geology (Le Conte), el. free-hand and geometrical drawing (optional with part of history). Also 2 of the following: Gage's El. physics; chemistry (Remsen's Briefer Course); biology (Boyer's Elementary).	65
French or German or parts of French and German requirements may be offered.	Same as for A. B. course and hist. of England.	Same as for B. S. course.	Same as for B. S. course, except that but 1 of the last 3 subjects may be offered.	
.....	U. S. history (Fiske); civil government.	Arithmetic (White); algebra (Milne).	Zoology (Steele and Jenks); physiology (Tracy); natural philosophy (Avery); botany (Gray's School); geology (Le Conte); chemistry (Remsen); phys. geog.	66
.....	Same as for A. B. course.	Same as for A. B. course; also geometry.	Same as for A. B. course.	
.....	Gen. history; U. S. history.	Arithmetic; algebra, through progressions; geometry (Wells), 4 bks.	Civil and physical geog.; el. zoology and physiology.	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course; also botany and physics.	67
One year's work in French or German.	.....do.....	.....do.....	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages
68	Lombard University, Galesburg, Ill. *a*	A. B., B. S., and B. L.	Gram. and analysis (1); comp. and rhetoric (1); literature (1).	Latin: Harkness Gram. and Reader (2); Cæsar, 3 bks. (1); Cicero, 5 orations (1); Virgil, 4 bks. (2). Greek: Goodwin's Gram. and Lessons (2); Anabasis, 4 bks. (2); Iliad, 3 bks. (1).
69	Greer College, Hoopeston, Ill.	A. B., B. S., and B. L.	Gram.; reading; writing; etymology.	.....
70	Illinois College, Jacksonville, Ill.	A. B.....	Gram.; comp. (Newcomer); rhetoric (Genung); literature (Syle's From Milton to Tennyson, 30 selections); essay.	Latin: Gram., including prosody; Cæsar, 4 bks.; Cicero, 8 orations; Virgil, 4,000 lines; comp. (Daniell); Roman antiquities (Tighe). Greek: Gram., including prosody; Anabasis, 4 bks.; Iliad, 3 bks.; comp. (Woodruff); classical geography.
		Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. S.....	.....do	One year of Latin or German.
71	Lake Forest University, Lake Forest, Ill.	.....	Comp. and rhetoric (Lockwood's Lessons and Genung's Practical Rhetoric, Part I); 1 year of critical reading in English and American literature.	Latin: Gram., including prosody; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Ovid, 1,000 lines; Latin at sight. Greek: Gram. (Goodwin); Xenophon; Homer, 3 bks.; prose comp. (Optional with part of Latin requirement or with French or German.)
72	McKendree College, Lebanon, Ill.	A. B.....	Gram; analysis; comp....	Latin: Gram.; Cæsar; Cicero's orations; Virgil; comp. Greek: First Greek; Xenophon; Homer.
		B. S.....	Same as for A. B. course..	Latin: same as for A. B. course.
		B. L.....	.....do	Same as for B. S. course...
73	Lincoln University, Lincoln, Ill.	A. B.....	Gram. (Meiklejohn); comp. (Hill); English literature.	Latin: Elementary Latin; Viri Romæ; Cæsar; Cicero; Virgil. Greek: El. Greek; Anabasis; Herodotus.
		B. S. and B. L.	Same as for A. B course...	Latin: Same as for A. B. course.
74	Monmouth College, Monmouth, Ill.	A. B.....	Gram.; rhetoric (Genung)	Latin: Gram.; Cæsar; Sallust; Cicero; Virgil. Greek: Gram. (Goodwin); Harper and Water's Greek Method.
		B. S. and B. L.	Same as for A. B. course..	Latin: Same as for A. B. course.

a Figures after subjects denote credits; 18 credits required for admission.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Edgren's grammar and Super's reader (1). German: Joynes-Meissner's grammar and Joynes's reader (2).	Grecian and Roman history (1); hist. of U. S. (1); hist. of England (1); civil government (1).	Arith., including metric system (1); el. algebra (2).	Carhart and Chute's Elements of Physics (1); Shepard's Elements of Chemistry (1); phys. geog. (1); botany (Gray) (1); Martin's Human Body (1).	68
.....	U. S. history.....	Arithmetic	Physiology; geography.	69
.....	History and Constitution of U.S.; hist. of Greece and Rome.	Arithmetic; algebra through quadratics; plane geometry, 5 bks.	El. botany	70
German: Reading at sight of easy prose.	Same as for A. B. course.	Same as for A. B. course.	El. botany; el. zoology; physiology and physics.	
One year of German or Latin.	.....do.....	.....do.....	Botany (Gray's School); zoology Colton's Practical); physics (Gage's Elements); physiology (Walker).	
One or 2 years' work in French or German may be offered for 1 or 2 years' work in Greek or Latin.	Greek and Roman hist. (Myers' Ancient History and Allen's Rome) or English and American hist. (Gardiner, Johnston).	Algebra through quadratics; plane geometry. An extra year or two in mathematics may be offered.	One year's work in either chemistry, physics, zoology, or botany. An extra year or two in laboratory science may be offered.	71
.....	U. S. hist.; Grecian, Roman, and English history; civil government.	Algebra; geometry...	Physiology; phys. geog.	
German: 2 years' work. Same as B. S. course, or 1 year each of French and German.	Same as for A. B. course. .....do.....	Same as for A. B. course. .....do.....	Same as for A. B. course. .....do.....	72
.....	U. S. hist.; gen. history; civil government.	Arithmetic; algebra; geometry.	Physiology; zoology; physics; botany.	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also chemistry, astronomy, and phys. geog.	73
.....	U. S. hist. (Johnston); Roman and Grecian history (Myers); civil government.	Arithmetic; algebra (Wentworth); geometry (Chauvenet).	Physiology; physics (Carhart and Chute).	74
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also botany and phys. geog.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
75	Northwestern College, Napervillo, Ill.	A. B.	Orthography; gram.; analysis; el. rhetoric; 1 year's critical study of English and American literature; comp.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 5 bks.; prose comp. (Collar); sight reading. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks., or Greek Testament; prose comp. (Jones); sight reading.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course. In place of Cicero and Virgil there may be offered Anabasis and Iliad as above.
		B. S	do	Latin or Greek as for A. B. course.
		B. L	do	Latin: Gram.; Cæsar, 4 bks; prose comp.; sight reading. (See science.)
76	Augustana College, Rock Island, Ill.	A. B.	Gram.; comp.; rhetoric; 2 English masterpieces.	Latin: Harkness' Easy Method for Beginners; Cæsar, 3 bks.; Cicero, 4 or 5 orations; Ovid's Metamorphoses, 30 or 40 pp.; comp.; syntax; prosody. Greek: White's Beginner's Greek Book; syntax; Anabasis.
		B. S	Same as for A. B. course.	Latin: Harkness' Easy Method for Beginners; Cæsar, 3 bks.; comp.
77	St. Joseph's Diocesan College, Teutopolis, Ill.	A. B.	Gram. (Harvey); comp.; reading; spelling.	Latin: Gram. as far as regular verb (Engelmann); exercises (Engelmann).
78	Shurtleff College, Upper Alton, Ill.	A. B.	Gram.; comp.; analysis; English literature.	Latin: Gram.; comp.; Cæsar; Cicero; Ovid; Virgil; prosody. Greek: Gram.; comp.; Anabasis; Homer; prosody.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
79	Westfield College, Westfield, Ill.	A. B.	Gram.; analysis; el. rhetoric and literature.	Latin: Gram.; Cæsar; Cicero; prose comp. Greek: Gram.; Anabasis; prose comp.
		B. S	Gram.; el. rhetoric and literature.	Latin: Gram.; prose comp.
80	Wheaton College, Wheaton, Ill.	A. B.	Gram.; analysis; el. rhetoric; English classics.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L	do	

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	American hist. (Montgomery); gen. hist. (Myers); civil government (Mowry).	Arithmetic, including metric system; algebra through quadratics (Wentworth); plane geom. (Wentworth).	Phys. geog.; physiology (Steele); el. physics (Gage).	
German: Gram. (Joynes-Meissner); William Tell; Iphigenie; comp.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	75
German: Gram. and Lessons (Joynes-Meissner).	.....do.....	.....do.....	Same as for A. B. course. Also el. zoology (Packard); astronomy (Steele); el. botany (Bessey).	
German: Same as for Ph. B. course. French: Gram. (Whitney); reader (Super); sight reading.	.....do.....	.....do.....	Same as for B. S. course. An additional year in Latin may be offered for zoology, astronomy, and botany.	
Swedish	U. S. hist. (Johnston); ancient hist. (Myers and Allen); civil government (Andrews).	Arithmetic (Wh.te); algebra (Wentworth); plane geometry (Loomis).	Botany (Gray); zoology (Jordan); experimental physics.	76
.....do.....	Same as for A. B. course.	Same as for A. B. course. Also solid and spherical geometry; plane trigonometry (Wentworth).	Same as for A. B. course.	
German: Gram. (Wetzel); reader (Herder).	U. S. hist. (Benziger).	Arithmetic (Ray's New Practical).	Phys. geog.....	77
.....	U. S. hist.; Greek and Roman hist.	Arithmetic; algebra to quadratics; geometry.	El. physiology.....	78
.....	U. S. and Roman hist.	Same as for A. B. course.	El. physiology; phys. geog.; natural phil.; chemistry; botany.	
.....	U. S. and general hist.; civil government; Bible.	Arithmetic; el. and intermediate algebra.	El. physics; phys. geog.	79
.....	U. S. hist.....	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; Greek and Roman hist.	Arithmetic; algebra through quadratics; plane geometry.	Phys. geog.; physiology; descrip. zoology; el. physics.	
.....	U. S. and general hist.; civil government.	Same as for A. B. course. Also: El. astronomy.	Same as for A. B. course. Also: Botany; drawing.	80
.....	Same as for B. S. course.	Arithmetic; algebra through quadratics.	Same as for B. S. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
81	Indiana University, Bloomington, Ind.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 2 bks.; Cicero, 5 orations; Virgil, 2 bks. Or Greek: Gram.; Anabasis; Hellenica, 2 bks.; Iliad; Odyssey; comp. (Optional with French or German.)
82	Wabash College, Crawfordsville, Ind.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 5 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.; prose comp.
		Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. S	.....do	Same as for Ph. B. course.
83	Franklin College, Franklin, Ind.	A. B.....	Gram.; el. rhetoric; comp.; literature.	Latin: Gram.; Cæsar; Virgil, 2 bks; prose comp. Greek: Gram.; Anabasis, 4 bks.; prose comp.
		B. S. and Ph. B.	Same as for A. B. course..	Latin: Same as for A. B. course.
84	De Pauw University, Greencastle, Ind.	A. B.....	Analysis; comp.; rhetoric; Scott's Marmion; Courtship of Miles Standish; Irving's Sketch Book; David Copperfield; De Foe's History of the Plague in London; Vicar of Wakefield; Silas Marner; Webster's First Bunker Hill Oration.	Latin: Gram.; comp. (Daniell); Cæsar, 4 bks.; Cicero, 6 orations. Greek: Lessons (White); gram. (Goodwin); comp.; Anabasis, 3 bks.
		B. S. and Ph. B.	Same as for A. B. course..	Latin: Same as for A. B. course.
85	Hanover College, Hanover, Ind.	A. B	Gram. (Reed and Kellogg).	Latin: Gram. (Harkness); Cæsar: Virgil; Cicero; comp. (Harkness). Greek: Gram. and Lessons: Xenophon; comp.
		B. S.....	Same as for A. B. course...	Latin: Same as for A. B. course. Other studies may be offered for Greek.
86	Hartsville College, Hartsville, Ind.	A. B	Rhetoric (Hill); comp.....	Latin: Gram.; Cæsar; Virgil: prose comp. Greek: Primer; Anabasis; comp.
		B. S.....	Gram. (Maxwell).....	.....
87	Butler College, Irvington, Ind.	A. B	Rhetoric (Williams); comp.: Irving's Sketch Book; Vision of Sir Launfal; Lady of the Lake; Ivanhoe; Merchant of Venice; Idyls of the King.	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 5 bks.; comp. Greek: Anabasis with Symposium; comp. (Jones). (German may be offered for Latin or Greek.)
88	Union Christian College, Merom, Ind.	A. B. and B. S.	Comp. and rhetoric (Williams).	Latin: Gram.; comp.: Cæsar, 4 bks.; Sallust, 61 chapters; Cicero, 4 orations. Greek: Harper and Castle (70 lessons).

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
German: Gram. (Thomas); reader (Whitney); comp. (Harris); classical authors or modern authors. *Or* French: Gram. and reader (Whitney); comp. (Grandgent); translations. (Optional with Latin or Greek.)	U. S. hist.; general hist. (Myers), or hist. and institutions of Greece and Rome (Myers' Greece, Allens' Rome).	Arith.; plane geometry (Wentworth); solid geom.; algebra through quadratics (Wentworth's School).	Phys. geog.; physiology; 1 year's experimental or laboratory work in 1 of the following: Chemistry, physics, zoology, geology, or botany.	81
.....	Roman hist. to death of Marcus Aurelius; history of Greece (Myers).	Arithmetic; algebra through quadratics; plane geometry, 4 bks.	Physiology (Martin).	
German: Gram. (Brandt); comp.; 500 pp. of reading matter.	Same as for A. B. course; also hist. of England since 1461; hist. of U. S.	Same as for A. B. course.	Same as for A. B. course.	82
Same as for Ph. B. course.	Roman hist. as for A. B.	.....do.....	.....do.....	
.....	U. S. hist. (Johnston); civil government (Macy); Greek and Roman history.	Arithmetic; algebra through quadratics; plane geometry.	Physiology	
.....	U. S. hist.; civil government; gen. hist. (Myers); English hist. (Montgomery).	Same as for A. B. course.	Physiology; el. zoology; el. physics (Gage).	83
.....	U. S. hist. (Fiske); gen. hist. (Myers).	Arithmetic; algebra through quadratics; plane, solid, and spherical geometry (Byerly's Chauvenet).	.....	84
French: Gram. and reader (Whitney); short romance. *Or* German: Gram.; reading at sight; 2 classics.	Same as for A. B. course.	Same as for A. B. course.	.....	
.....	Gen. hist. (Myers); English hist. (Montgomery); American hist. (Montgomery); science of government.	Arith.; algebra (Robinson); geometry, 5 bks. (Wentworth).	Nat. phil. (Griffin); phys. geog. (Huston); zoology (Cooper).	85
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	.....	Algebra; plane and solid geometry.	Descrip. astron.....	
.....	U. S. hist. (Barnes); civil government (Young).	Arithmetic (Robinson's Shorter Course).	Physiology (Martin); phys. geog. (Huston); el. physics.	86
German: Comp. (Harris); 300 pages of easy prose; gram. (Joynes-Meissner). (Optional with Latin or Greek.)	Gen. hist. (Myers); civil government (Fiske).	Arith.; algebra through quadratics; plane geometry (Wentworth).	El. physics (Gage); el. botany (Spalding).	87
.....	Civil government (Young); ancient, mediæval, and modern hist. (Barnes).	Algebra; geometry, 5 bks. (Loomis).	Physiology (Steele); nat. phil. (Steele).	88

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
89	Moores Hill College, Moores Hill, Ind.	A. B	English	Latin: Cæsar, 4 bks.; Cicero; Virgil, 4 bks. Greek: Anabasis, 4 bks.; Homer; prose comp.
		Ph. B.	Same as for A. B. course	Latin: Same as for A. B. course. Greek: Elements.
		B. S.	do	Latin: Same as for A. B. course.
90	University of Notre Dame, Notre Dame, Ind.	A. B	Comp.; letter-writing; simple narrative.	Latin: Gram.; translation of Cæsar into English and of short English sentences into Latin. Greek: Gram.: Anabasis; translation of simple phrases into Greek.
		B. L	Same as for A. B. course; also gram.	Latin: Same as for A. B. course.
		B. S.	Same as for B. L. course	Same as for B. L. course.
		C. E. and M. E.	Same as for A. B. course	do
91	Earlham College, Richmond, Ind.		Syntax; el. rhetoric; literature (Arnold and Shaw).	Latin: Collar and Daniell's First Latin Book; Cæsar, 3 bks.; Virgil, 4 bks.; Cicero, 5 orations. (German may be offered for Latin in some courses.)
92	Ridgeville College, Ridgeville, Ind.	A. B	Gram.; comp	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 6 bks. Greek: Gram.; prose comp.; Anabasis, 3 bks.; Iliad, 2 bks.
		B. S.	Gram.; comp.; el. English literature.	Latin: Same as for A. B. course.
93	St. Meinrad College, St. Meinrad, Ind.	A. B	Gram. (Brown's Institutes); comp.	Latin: Gram. (Schultz); exercises (Schultz).
94	Taylor University, Upland, Ind.	A. B	Rhetoric (Hart)	Latin: Harkness; Cæsar, 4 bks.; Sallust's Catilina; Cicero, 3 orations; Virgil, 6 bks.; Horace, Odes and Epistles; comp. Greek: White; Anabasis; Iliad.
		B. S.	Same as for A. B. course	Latin: Same as for A. B. course.
		M. E. L	Same as for A. B. course. Also Literature (Shaw).	
95	Indian University, Bacone, Ind. T.	A. B	Gram.; analysis; rhet.; comp.	Latin: Elements
96	Henry Kendall College, Muskogee Ind. T.	A. B	Gram.; comp.; criticism	Latin: Gram. and reader; Cæsar; Cicero, 2 orations; Virgil, 4 bks. Greek: Gram. and reader; Anabasis, 2 bks.
		B. S.	Gram.; comp.; criticism; rhetoric.	Latin: Same as for A. B. course.
97	Coe College, Cedar Rapids, Iowa.		Gram. and comp	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 4 orations. Greek: Gram.; Lessons (Keep); Anabasis, 2 chapters of first book.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Ancient, mediæval, and modern hist.	Arith.; algebra; plane and solid geometry.	.....	
German: Gram. and reader (Stein).	Same as for A. B. course.	Same as for A. B. course.	.....	89
German: Gram. and reader (Stein); Minna von Barnhelm; comp.; German hist.; gram.; Soll and Haben.	.....do.....	.....do.....	El. physics.....	
.....	American and ancient hist.	Arithmetic and algebra complete.	.....	
German: Gram.; translations from and into German.	U. S. hist	Arith.; algebra to logarithms; plane and solid geometry.	.....	90
El. French or German	U. S. hist.; modern hist.	Same as for B. L. course.	.....	
.....	Modern hist	.....do.....	.....	
German: Minna von Barnhelm; Wilhelm Tell; Iphigenie; prose comp. (See Latin.)	Gen. hist. (Myers); U. S. hist. (Montgomery).	Arith.; algebra through quadratics; plane geometry.	Physiology (Martin); botany (Wood); nat. phil. (Sharpless and Phillips).	91
.....	U. S. and gen. hist....	Arith.; algebra; plane and solid geometry.	El. physics.....	92
.....	Same as for A. B. course. Also civil government.	Same as for A. B. course.	El. physics; physiology; phys. geog.; botany.	
German: Gram. (Engelmann); Benziger's III Lesebuch; Aufsetze, Memoriren.	U. S. hist. (New Eclectic).	Arith. to percentage.	Phys. geog.....	93
.....	Gen. hist. (Myers).....	Algebra and geometry (Wentworth); trigonometry; mensuration and surveying.	Physics (Appleton); zoology (Tenney); botany (Gray).	
French or German...	Same as for A. B. course.	Same as for A. B. course.	Phys. geog. (Appleton); botany (Gray); physiology (Martin).	94
.....	.....	Algebra.....	Physics (Appleton) .	
French: Elements....	U. S. and English hist.	Arith.; algebra.....	Phys. geog	95
.....	U. S. hist. (Barnes); Greek hist.; civil government.	.....do.....	.....	96
.....	U. S. and Roman hist.; civil government.	Same as for A. B. course.	Phys. geog.; physiology.	
.....	U. S. hist.; civil government.	Arith.; algebra, through quadratics; plane and solid geometry.	El. physiology; phys. geog.; el. nat. phil.; botany (not required for A. B. course).	97

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
98	Charles City College, Charles City, Iowa.	A. B	Gram.; rhetoric	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 5 bks.; Livy, 2 bks. Greek: Gram.; comp.; Anabasis, 4 bks.; Lysias; Herodotus, 6th and 7th bks.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
99	Amity College, College Springs, Iowa.	A. B	Gram.; rhetoric; literature (Brooke's Primer); Milton's Paradise Lost, I-II; Merchant of Venice.	Latin: Gram.; Cæsar, 6 bks.; Cicero, 2 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
		Ph. B. and B. L.	do	Same as for B. S. course.
100	Luther College, Decorah, Iowa.	A. B	Gram.; rhetoric; American literature.	Latin: Gram. (Schreiner); Cæsar.
101	Des Moines College, Des Moines, Iowa. *a*	A. B., Ph. B., B. S.		
102	Drake University, Des Moines, Iowa.	A. B	Rhetoric; literature	Latin: Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 6 bks.; Ovid, 1,500 lines. Greek: Anabasis, 1 bk.; Herodotus; Thucydides.
		B. S	Same as for A. B. course	Latin (optional with German).
		B. L	do	Latin: Same as for A. B. course.
		Ph. B	do	Latin: Same as for A. B. course or 3 years of classical Greek.
103	Parsons College, Fairfield, Iowa.	A. B	Gram.; analysis; comp.; Merchant of Venice; Idyls of the King; Webster's First Bunker Hill Oration.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; primer (Frost); Anabasis, 1 bk.; prose comp.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
104	Upper Iowa University, Fayette, Iowa.	A. B	Rhetoric; gram.; comp.; Julius Cæsar; Merchant of Venice; Lady of the Lake; Arnold's Sohrab and Rustrum; Sir Roger de Coverley; Macaulay's Second Essay on the Earl of Chatham; Emerson's American Scholar; Irving's Sketch Book; Scott's Abbot; David Copperfield.	Latin: Gram.; Cæsar, 3 bks.; Cicero, 5 orations; Virgil, 6 bks.; Ovid, 2,000 lines. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks.; Select Orations of Lysias (Stevens); comp.
		Ph. B	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	do	Same as for Ph. B. course.

a Requirements are practically the same as for the University of Chicago, p. 500.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Ancient, mediæval, and modern hist.	Algebra; plane and solid geometry.	Phys. geog.; nat. phil.	98
German: Gram. (Joynes-Meissner); Grimm's Tales.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Barnes); civil government.	Arith.; algebra; plane and solid geometry; trigonometry.	Phys. geog.; physiology; physics.	98
El. French or German.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
German: Gram; easy reading.	.....do.....	.....do.....	.....do.....	
German: El. reader (Lassen). Norwegian: Gram.; comp.; reading.	Gen. hist. (Utheim); U. S. hist. (Fiske); civil government (Macy).	Arith.; algebra and plane geometry (Wentworth).	Physics; phys. geog.; zoology; physiology.	100
.....	.....	.....	.....	101
.....	Gen. hist.....	Algebra; geometry..	Phys. geog.....	
German (optional with Latin).	Same as for A. B. course.	Algebra; geometry; plane trigonometry.	Phys. geog.; botany; physiology; physics.	102
German.....	.....do.....	Same as for A. B. course.	Same as for A. B. course.	
.....	.....do.....	.....do.....	Phys. geog.; physiology; physics.	
.....	U. S. and gen. hist.; civil government.	Arith.; algebra, through quadratics; plane and solid geometry.	Physiology; phys. geog.	103
.....	Same as for A. B. course.	Same as for A. B. course. Also higher arith.	Physiology; phys. geog.; physics.	
.....	U. S. and gen. hist.; civil government.	Arith.; algebra, through quadratics; plane, solid, and spherical geometry.	Phys. geog.; botany; physiology.	104
German or French...	Same as for A. B. course.	Same as for A. B. course.	El. physics (Gage); botany; physiology	
Same as for Ph. B. course.	.....do.....	.....do.....	Same as for Ph. B. course. Also chemistry.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
105	Iowa College, Grinnell, Iowa.	A. B.	Gram.: el. rhetoric (Genung); Chaucer's Prologue; Faery Queen, bk. I; Paradise Lost, bk. 1; Pope's Essay on Criticism; Gray's Elegy; Burns's Cotter's Saturday Night; Wordsworth's Tintern Abbey and Ode on Intimations of Immortality; Tennyson's Two Voices and Palace of Art; Shelley's Defense of Poetry; selections from Essays of Bacon, Addison, Macaulay, Lowell, and Emerson; a romantic novel; a realistic short story.	Latin: Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; mythology (Gayley); prose comp. Greek: Gram.; comp.; Anabasis, 2 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course. Greek: Same as for A. B. course or French or German.
106	Lenox College, Hopkinton, Iowa.	A. B.	Gram.; comp.	Latin: Cæsar; Virgil; prosody; mythology. Greek: Anabasis; Lessons.
		B. S.	Same as for A. B. course.	Latin Lessons or German.
107	Simpson College, Indianola, Iowa.	A. B.	Rhetoric (Genung); gram. and analysis; comp.; English classics.	Latin: Gram.: lessons (Collar and Daniell); Cæsar, 4 bks.; prose comp.; Cicero, 5 orations; Virgil, 6 bks. Greek: First Lessons (Harper); gram.; Anabasis, 1 bk.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do.	Latin: Gram.; lessons (Collar and Daniell); Cæsar, 4 bks.; prose comp.
108	State University of Iowa, Iowa City, Iowa.	A. B. and Ph. B.	Gram.; rhetoric; comp.; Merchant of Venice; Midsummer Night's Dream; L'Allegro; Il Penseroso; Comus; Evangeline; Macaulay's Essay on Addison; Webster's First Bunker Hill Oration; Irving's Tales of a Traveler; Scott's Woodstock; George Eliot's Silas Marner.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 2 bks.
		B. S., Ph. B., and Engineering.	Same as for A. B. course.	Same as for A. B. course. (Optional with modern languages and science.)
109	German College, Mt. Pleasant, Iowa.	A. B.	El. rhetoric; American literature; English classics.	Latin: Gram.; Cæsar; Cicero; Virgil; prose comp. Greek: Gram.; Anabasis.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; gen. hist. (Myers) or Greek hist. (Smith's Smaller) and Roman hist. (Leighton); el. civil government (Macy).	Arith.; algebra, through quadratics; plane and solid geometry (Wentworth).	Physiology; phys. geog.; physics (Balfour Stewart's Elementary and Chute's Physical Laboratory Manual); botany (Gray's Lessons and Spalding's laboratory course).	105
French or German: Gram.; reading 300 or 400 pages of French and 200 pages of German. (Optional with Greek.)	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; civil government.	Arithmetic; algebra.	Physiology	103
German: Brandt's Reader. (Optional with Latin.)	Same as for A. B. course.	Arithmetic	.....	
.....	Hist. of U. S. (Johnston); hist. of England; civil government.	Arith.; algebra, through pregression; plane and solid geometry.	El. physics; el. chemistry (Shepherd); geography.	107
German: Gram.; easy prose.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
German: Gram.; sight reading.	.....do.....	.....do.....	Same as for A. B. course. Also botany.	
.....	U. S. and gen. hist.; civil government.	Algebra, through quadratics; plane and solid geometry.	.....	108
French and German. (See classical languages.)	Same as for A. B. course.	Same as for A. B. course.	Phys. geog.; physics; chemistry; astronomy; botany; zoology; physiology; geology; economics; drawing. (See classical languages.)	
German: Gram. (Naumann).	Hist. of Rome and Greece.	Algebra; geometry...	El. biology; el. microscopy; el. botany; el. physics; el. chemistry.	110
Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
110	Iowa Wesleyan University, Mt. Pleasant, Iowa.	A. B.	El. rhetoric; Midsummer Night's Dream; Defoe's History of the Plague in London; Tales of a Traveler; Scott's Woodstock; Macaulay's Essay on Milton; Evangeline; Silas Marner; biblical literature.	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Anabasis, 1 bk.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course, or 1 yr. of Latin and 2 yrs. of Greek.
		B. S. and B. L.	do	Two yrs. work in any two of the following: Latin; Greek; French; German.
111	Cornell College, Mt. Vernon, Iowa.	A. B.	Rhetoric (Clark); English literature (Painter's Introduction); 6 of the following: Evangeline or Hiawatha; Henry Esmond; Ancient Mariner; Alhambra; Scott's Marmion; Julius Cæsar or Merchant of Venice; Adam Bede; Vision of Sir Launfal; Macaulay's Essay on Milton; House of Seven Gables; Enoch Arden; Webster's Bunker Hill orations.	Latin: Gradatim (Collar's revision); Latin Book (Scudder's Beginner's); Viri Romæ; prose comp. (Daniel, Parts I, II); Cæsar, 4 bks.; Nepos with Rolfe's exercises; Sallust's Jugurtha or Catiline; Cicero, 4 orations. Greek: Lessons (Goodell); gram. (Goodwin); prose comp.; Anabasis, 3 bks.; Hellenica, 3 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	Latin: Same as for A. B. course up to Cicero.
		Civil Eng.	do	Latin: Same as for B. S. course (optional).
112	Oskaloosa College, Oskaloosa, Iowa.	A. B., Ph. B., and B. L.	El. rhetoric; comp.; American literature.	Latin: Lessons; Cæsar; Cicero; Virgil.
113	Penn College, Oskaloosa, Iowa.	A. B. and Ph. B.	Gram.; el. rhetoric; Shakespeare's As You Like It; Defoe's History of the Plague in London; Tales of a Traveler; Twice Told Tales; Evangeline; Silas Marner.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 6 bks.; prose comp.
		B. S.	Same as for A. B. course.	Same as for A. B. course, except Virgil.
114	Central University of Iowa, Pella, Iowa.	A. B.	Same as Penn College, Oskaloosa, Iowa.	Latin: Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 2 bks.; Memorabilia, 1 bk.; Homer, 3 bks.; prose comp.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
115	Morningside College, Sioux City, Iowa.	A. B.	Rhetoric; comp.	Latin: Gram.; Cæsar; Cicero; Virgil; prose comp. Greek: Gram.; Anabasis; Iliad.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	Rhetoric	Latin: Grammar and lessons.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Hist. of Rome and Greece; biblical history.	El. algebra; plane and solid geometry.	El. zoology; el. physics; el. chemistry; el. botany; drawing.	110
French or German, 1 year.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
See classical languages.	.....do.....	.....do.....	.....do.....	
.....	U. S. hist. (Johnston); civil government (Thorpe); Greek hist. (Myers); Roman hist. (Allen); mediæval and modern hist. (Myers); polit. econ. (Walker's 1st Lessons).	Algebra, through quadratics (Wentworth); plane and solid geometry (Wentworth).	Mills's Realm of Nature; geology (Le Conte's Compend); physiology (Martin); botany (Gray's Lessons); physics (Gage).	111
French or German: Gram.; easy prose at sight.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
Same as for Ph. B. course.	.....do.....	.....do.....	Same as for A. B. course. Also, chemistry (Williams).	
.....do.....	.....do.....	.....do.....	Same as for B. S. course.	
.....	U. S. and gen. hist.; civil government.	Algebra; geometry...	Physiology; nat. phil.; phys. geog.; botany.	112
German: Gram. (Joynes-Meissner); reader (Joynes). (Optional with 1 yr's. work in English, history, or science.)	.....do.....	Arith.; algebra, through quadratics; plane and solid geometry.	Physiology; physics; botany.	113
German: Gram. and reader.	Same as for A. B. course. Also 1 yr. in hist. of Greece, Rome, France, and England.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Barnes); gen. hist. (Myers); civil government.	Arith.; algebra, to quadratics; plane and solid geometry.	Physiology (Martin); physics; zoology or botany; phys. geog.	114
German: Gram. (Joynes-Meissner); reader (Van Dael); prose comp.; German authors.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Gen. hist.....	Algebra; geometry...	Phys. geog.....	
French (2 yrs.).....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	115
French (1 yr.); German (2 yrs.).	.....do.....	.....do.....	.....do.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
116	Tabor College, Tabor, Iowa.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 2 bks.; Cicero, 5 orations; Virgil, 5 bks.; Sallust's Jugurthine War. Greek: Gram.; Anabasis, 2 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	Same as for A. B. course. Also, American literature.	Same as for B. S. course.
117	Western College, Toledo, Iowa.	A. B.	English composition	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis; prose comp.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
118	Midland College, Atchison, Kans.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Virgil, 3 bks.; Cicero, 5 orations. Greek: Gram.; Anabasis, 4 bks.
		B. S. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
119	St. Benedict's College, Atchison, Kans.	A. B.	Gram. (Swinton); comp.; rhetoric (Coppens); select English authors.	Latin: Gram. (Engelmann); Nepos; Ovid's Metamorphoses. Greek: Gram. (Spiess and Seiffert); exercises.
120	Baker University, Baldwin, Kans.	A. B.	Gram.; rhetoric; comp.; American literature.	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Seaman's Classical Mythology. Greek: Gram. (Goodwin); Anabasis, 1 bk.
		Ph. B. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S. and B. L.	do	do
121	Soule College, Dodge City, Kans.		Gram.; English classics.	Latin: Bellum Helvetium; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 3 bks. Greek: Harkness; Anabasis; Herodotus.
122	Highland University, Highland, Kans.	A. B.	Gram.; comp.; rhetoric (Genung).	Latin: Gram.; Viri Romæ; Cæsar, 4 bks.; Cicero, 4 orations and De Senectute; Virgil, 4 bks.; prose comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 2 bks.; prose comp.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
123	Lane University, Lecompton, Kans.	A. B.	Gram.; higher lessons in English.	Latin: Reader (Harkness); Nepos; Cæsar; Cicero; Sallust. Greek: Reader; Anabasis.
		B. S.	Same as for A. B. course.	Latin: Reader; Nepos; Cæsar.
		B. L.	do	Latin: Reader.
124	Bethany College, Lindsborg, Kans.	A. B. and B. S.	Gram.; comp.; rhetoric; literature.	Latin: Gram. and reader (Harkness); Cæsar, bks. I, III; prose comp.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	U. S. hist.; hist. of Great Britain; civil government.	Arith.; algebra, through quadratics; plane and solid geometry; plane trigonometry.	Physiology (Martin); phys. geog.; el. physics (Gage); botany (Bessey).	116
German: Gram.; Grimm's Maerchen.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	....do	....do	Same as for A. B. course. Also music; fine art.	
	U. S. and gen. hist.; civil government.	Algebra; plane and solid geometry.	El. physics (Gage); botany; physical geog.; physiology.	
German: Gram. and reader (Joynes-Meissner); Storm's Immensee; Heyse's L'Arrabiata.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	117
	U. S. hist. (Montgomery); ancient hist. (Myers); civil government (Young).	Arith.; algebra, through quadratics; plane geometry.	Phys. geog. (Butler); physiology (Hutchison).	
German: Gram.; reader (Super); Grimm's Maerchen; comp.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	118
French or German...	U. S. hist. (Sadlier); modern hist. (Fredet).	Arithmetic; algebra, to involution (Brooks).	Zoology (Packard); botany (Gray).	119
	U. S. hist. (Johnston); gen. hist. (Myers); civil government.	Arithmetic; algebra, through quadratics; plane geometry.	Phys. geog. (Guyot); physiology; physics (Appleton); astronomy (Young's Elements).	
German: Gram. (Joynes-Meissner); reader (Joynes).	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	120
Same as for Ph. B. course; also French gram. and reader.	....do	....do	....do	
	English hist.; U. S. hist.; civil government; gen. hist.	Arith.; el. algebra; plane geometry.	Physiology; el. physics; zoology; chemistry; botany.	121
	U. S. hist. (Barnes); hist. of England (Lancaster); civil government (Cocker); Roman hist. (Leighton); Grecian hist. (Barnes); gen. hist. (Myers).	Arith.; algebra (Wentworth) to logarithms; plane geometry.	Physiology (Steele); el. physics (Gage).	
German: Gram. (Otis. Whitney); Storm's Immensee; Schiller's Jungfrau; Hermann and Dorothea.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	122
	U. S. hist.; civil government.	Arith.; algebra; higher arith.	Physiology; el. astronomy; phys. geog.; botany.	
	Same as for A. B. course.	Arith.; algebra	Same as for A. B. course.	123
	....do	Arith.; el. algebra...	Physiology	
Swedish: Gram.; comp.	U. S. and Swedish hist.	Arith.; algebra to quadratics (Wentworth's School); plane geometry, 2 bks.	Physiology (Martin); zoology (Packard); botany.	124

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
125	University of Kansas, Lawrence, Kans.	A. B	Comp.: Julius Cæsar: Merchant of Venice: Irving's Sketch Book: Scott's Ablot: David Copperfield. Also: Comp.: rhetoric (Genung): hist. of English language (Lounsbury): 15 or 20 English classics. (Optional with Greek, French, or German.)	Latin: Gram.: reader: Cæsar, 4 bks.: Cicero, 6 orations: Virgil, 5 bks. Greek: Primer (Frost): Anabasis, 2 bks. (Optional with French, German, or part of English.)
		Civil and electrical engineering.	Comp.: Julius Cæsar: Merchant of Venice: Irving's Sketch Book: Scott's Ablot: David Copperfield.	.....
126	Ottawa University, Ottawa, Kans.	A. B	Comp.: el. rhetoric: English and American literature.	Latin: Gram.: Cæsar: Sallust's Catiline: Cicero's orations: Virgil. Greek: Lessons: Anabasis: Iliad.
		B. L	Same as for A. B. course	Latin, Same as for A. B. course.
		B. S	do	Latin: Gram.: Cæsar
127	St. Mary's College, St. Marys, Kans.	A. B	Gram (Goold Brown): comp.: Coppens' Practical Introduction.	Latin: Gram. (Yenni): Cæsar: Cicero. Greek: Gram. (Yenni): Æsop: Hierocles: Lucian: comp.
128	Kansas Wesleyan University, Salina, Kans.	A. B	Gram.: comp. and rhetoric (Lockwood): literature (Kellogg or Brooke's Primer).	Latin: Gram.: comp.: Cæsar, 4 bks.: Sallust's Catiline or Virgil's Georgics and Bucolics: Cicero, 5 orations: Virgil, 6 bks. Greek: Gram.: Anabasis, 3 bks.: Iliad, 3 bks.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
129	Cooper Memorial College, Sterling, Kans.	A. B	One term's work in English.	Latin: Gram.: Viri Romæ: Cæsar: Virgil; Cicero. Greek: Gram.
		B. S	Same as for A. B. course	Latin: Gram.; Viri Romæ: Cæsar; Virgil.
130	Washburn College, Topeka, Kans. *a*	A. B., B. S., and Ph. B.	Requirements of Commission of New England Colleges. *b*	Latin: Cæsar, 4 bks.: Cicero, 5 orations. Elective: Virgil, I-III: Virgil, IV-VI, VIII or Bucolics. Greek—Elective: White's Greek Lessons and Anabasis, bk. I: Anabasis, II, III, IV, and prose comp. (Jones); Iliad, 3 bks.
131	Fairmount College, Wichita, Kans.	A. B	Gram.; comp.; Merchant of Venice: Milton's Comus and Lycidas: Evangeline: Webster's First Bunker Hill Oration: Tales of a Traveler: Twice Told Tales: Silas Marner.	Latin: Gram.: prose comp.: Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.: prose comp.: Anabasis, 3 bks.; Iliad, 3 bks.
		B. L	Same as for A. B. course: el. Eng. literature.	Latin: Same as for A. B. course.
		B. S	Same as for B. L. course	Same as for B. L. course.

a Of the electives, 8 subjects must be offered.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram. (Whitney); sight reading; literature. Or German: Gram. (Otis); reader (Brandt); Wilhelm Tell; comp. (Optional with Greek or part of English.)	Gen. hist. (Myers); civil government (Fiske, Macy, etc.); Canfield's Local Government in Kansas.	Algebra through quadratics; plane and solid geometry.	Physics (Gage's Elements).	125
French: Gram. (Whitney); easy prose. German: Gram. (Otis); reader (Brandt); easy prose.	Same as for A. B. course.	Same as for A. B. course.	Phys. geog.; physics (Gage's Elements).	
.....	Civil government; gen. hist.	Arith.; algebra; geometry.	Physiology	
.....	Same as for A. B. course; also English hist.	Same as for A. B. course.	Phys. geog.; physiology.	126
.....	Same as for B. L. course.	.....do.....	Chemistry; phys. geog.; physiology; physics; botany.	
.....	U. S. hist. (Sadlier); modern hist. (Fredet.)	Arith.; algebra through quadratics.	Phys. geog.....	127
.....	U. S. and gen. hist. (Barnes); Greek hist. (Fyffe).	Arith.; algebra to permutations; plane and solid geometry.	Phys. geog.; physiology (Martin); el. physics (Appleton); botany (Gray).	128
German: Gram. (Wenckebach); Hermann und Dorothea; Wilhelm Tell; Immensee, etc.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; civil government.	Arith.; algebra; geometry.	Phys. geog.; physiology; nat. philosophy; botany.	129
.....	Same as for A. B. course.	Arith.; algebra.....	Phys. geog.; physiology.	
German—Elective: Gram. (Thomas); reader (Brandt); comp.; Heine's Harzreise; Schiller. French—Elective: Chardenal's First French Course; Bercy's La Langue Française; 200 pages of simple prose.	Hist. of Greece to Macedonian supremacy; hist. of Rome to death of Augustus. Elective: Civil government (Thorpe).	Algebra to permutations; plane geometry. Elective: Solid geometry; advanced algebra.	Elective: Physiology (Martin); phys. geog. (Tarr); physics (Appleton); botany (Gray); inorganic chemistry.	130
.....	U. S. hist.; Greek and Roman hist.	Arith.; University algebra to Part III; plane geometry.	El. physics; physiology.	131
.....	U. S. and gen. hist	Same as for A. B. course.	Same as for A. B. course; also phys. geog.	
German: 1 yr's. study	Same as for B. L. course.	.....do.....	Same as for B. L. course; also botany.	

b See page 458.

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
132	Southwest Kansas College, Winfield, Kans.	A. B.	Gram.; comp.; Merchant of Venice; Evangeline; Neighborly Poems (Riley); Adam Bede.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Ovid's Metamorphoses; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		B. S.	do	Latin: Same as for A. B. course.
133	Union College, Barbourville, Ky.		Gram. (Harvey); comp. (Swinton).	Latin: Exercises (Gross); Cæsar; Virgil. Greek: Gram. and lessons.
134	Berea College, Berea, Ky.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; Cæsar, 4 bks; Cicero, 5 orations and De Senectute. Greek: Gram.; Anabasis, 3 bks.; prose comp.
		Ph. B.	Same as for A. B. course.	Latin: Gram. (Harkness); Cæsar, 4 bks. Greek: Gram. (Hadley and Allen); Primer (Frost).
		B. L.	do	Latin: Gram.; Cæsar, 1 bk.
135	Ogden College, Bowling Green, Ky.	A. B.	Higher Lessons (Reed and Kellogg); gram.; analysis of English classics; comp.	Latin: Gram.; Cæsar, 3 bks.; Virgil, 2 bks. Greek: Gram.; First Lessons (White); Anabasis, 1 bk.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	
136	Centre College, Danville, Ky.	A. B.	Gram. and analysis	Latin: Cæsar, 2 bks.; Virgil, 3 bks.; Cicero, 4 orations; gram.; prosody. Greek: Anabasis, 2 bks.; Attic inflection; syntax.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
137	Georgetown College, Georgetown, Ky.	A. B.	Gram.; comp.; rhetoric	Latin: Syntax; Nepos; Cæsar, 4 bks.; Sallust's Catiline or Jugurtha. Greek: Gram.; White's Beginner's Greek Book; Anabasis, 4 bks. (Not required for A. B. course without Greek.)
		B. L. and B. S.	Same as for A. B. course.	
138	Liberty College, Glasgow, Ky.	A. B. and B. S.	Gram	Latin: Gram
139	South Kentucky College, Hopkinsville, Ky.	A. B. and B. S.	Gram	
140	Agricultural and Mechanical College, Lexington, Ky.	A. B.	Gram. (Patterson); rhetoric (Williams); synonyms (Graham).	Latin: Gram.; Cæsar (Kelsey); Virgil; exercises. Greek: Gram.; Anabasis (Kelsey); Iliad.
		B. S., B. Agr., B. C. E., B. M. E.	Same as for A. B. course.	
141	Kentucky University, Lexington, Ky.	A. B.	Gram. (Metcalf); study of words.	Latin: Gram. (Harkness); Cæsar (Kelsey). Greek: White's Beginner's Greek Book.
		B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; civil government (Fiske); gen. hist. (Myers).	Arith.; algebra through quadratics; plane and solid geometry.	Phys. geog.; el. physiology; physics (Appleton); botany (Gray).	
German: Gram. (Joynes-Meissner); Grimm's Maerchen; 1 play each of Schiller, Goethe, and Lessing,	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	132
Same as for Ph. B. course.	.....do.....	.....do.....	.....do.....	
.....	U. S. hist. (Thalheimer); civil government (Andrews).	Arith.; algebra (Wells).	Physiology (Steele); phys. geog.	133
German: Gram.; easy prose at sight.	U. S. hist. (Barnes); gen. hist. (Myers); civics (Fiske).	Arith.; algebra (Wells); plane and solid geometry.	Phys. geog.; physiology (Martin); el. physics (Carhart and Chute); botany (Gray).	
.....	Same as for A. B. course.	Arith.; algebra (Wells).	Same as for A. B. course.	134
.....	.....do.....	Arith.; algebra (Wells) to indeterminate equations.	Phys. geog.....	
.....	Hist. of England (Montgomery); gen. hist. (Myers).	Arith.; algebra (academic); plane geometry (Wentworth).	Phys. geog. (Maury); el. physics; el. chemistry.	135
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	.....do.....	.....do.....	.....do.....	
.....	Outlines of history...	Arith.; algebra through quadratics.	Ancient and modern geography.	136
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. and English hist.	Arith.; algebra to quadratics.	Phys. geog.....	137
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; civil government.	Arith.; el. algebra....	Physiology	138
.....	Beginner's American hist. (Montgomery).	Arith.; (Wentworth's Intermediate); algebra (Wells).	Phys. geog.....	139
.....	U. S. hist	Arith. (Robinson's Higher); algebra (Wentworth to Chap. XXII).	El. physics (Gage)...	
.....	U. S. and gen. hist....	Same as for A. B. course.	El. physics (Gage); phys. geog. (Maury).	140
.....	U. S. hist. (Scudder).	Arith. (Milne); geometry (Hornbrook's Concrete); algebra.	Phys. geog. (Houston).	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	141
.....	.....do.....	.....do.....	.....do.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
142	Central University, Richmond, Ky.	A. B	Gram. (Welsh); comp.; English classics.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations. Greek: Gram.; Anabasis, 2 bks.; prose comp.
		B. L	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S	do	
143	Bethel College, Russellville, Ky.	A. B	Gram. (Baskerville); How to Write Clearly (Abbott).	Latin: Collar and Daniell's Beginner's Book; gram. (Gildersleeve); Collar's Gate to Cæsar. Greek: White's Beginner's Book; gram. (Hadley-Allen); introduction to Anabasis.
		B. S	Same as for A. B. course	Latin or Greek as for A. B. course (elective).
144	Kentucky Wesleyan College, Winchester, Ky.	A. B	Gram. (Metcalf); comp. (Chittenden).	Latin: Gram. (Bennett); Cæsar. Greek: Gram. (Goodwin); Graves and Hawes' First Book; Anabasis.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
145	Louisiana State University, Baton Rouge, La.	A. B	Gram. (Patterson, Whitney, and Lockwood); comp.	Latin: Beginner's Latin (Collar and Daniell); Gate to Cæsar (Collar).
		B. S. *a*	Same as for A. B. course	
146	Jefferson College, Convent, La.	A. B	Gram. (Bullion); comp. (Quackenbos); Goldsmith's poems.	Latin: Gram.; Nepos or De Viris; Cæsar; Sallust's Catiline; prose comp. Greek: Gram.; reader; Arnold's First Book.
147	Centenary College, Jackson, La.	A. B	Gram.; comp	Latin: Gram.; reader; Cæsar; Virgil, 6 bks.; Cicero's Orations. Greek: Gram.; lessons; Anabasis, 1 bk.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
148	Keachie College, Keachie, La.	A. B. and B. S.	Gram.; comp	Latin: Collar and Daniell's First Year.
149	College of the Immaculate Conception, New Orleans, La.	A. B	Gram. (Murray); comp.; Irving's Sketch Book; Gray's Elegy.	Latin: Gram. (Yenni); Cæsar; comp. Greek: Gram. (Yenni); comp.; reading.
150	New Orleans University, New Orleans, La.	A. B	English classics; comp.; rhetoric.	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Gram.; reader; Anabasis; prose comp.; sight reading.
		Ph. B	Same as for A. B. course	Latin: Same as for A. B. course.
151	Straight University, New Orleans, La.	A. B	Rhetoric and American lit. (Lockwood); English lit. (Brooke).	Latin: Lindsay and Rollins; Cæsar; Cicero's Orations; comp. Greek: Introductory Book (Frost).
		Classical	Gram.; comp.; As You Like It; Defoe's History of the Plague in London; Tales of a Traveler; Twice Told Tales; Vicar of Wakefield; Lady of the Lake.	Latin: Cæsar, 4 bks.; Cicero, 4 orations; comp. (Collar). Greek: Sight reading of easy Attic prose; prose comp. (Jones).
152	Tulane University, New Orleans, La.	Literary and Lat. Sci.	Same as for classical course.	Latin: Same as for classical course.
		Scientific and Engineering.	do	Latin: Same as for classical course or French or German.

a Scientific, agricultural, and engineering courses.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	American and English hist. (Montgomery).	Arith.; algebra through quadratics.		142
	Same as for A. B. course.	Same as for A. B. course.		
	do	do		
	Gen. hist. (Myers); hist. of Greece (Oman).	Academic arith. (Wells); academic algebra (Wells); Stoddard's mental arith.		143
El. French or German (elective).	Same as for A. B. course.	Same as for A. B. course.	Phys. geog. (Maury); el. physics (Norton).	
	U. S. hist. (Shinn); English hist. (Montgomery).	Arith. (White's academic); algebra (Wentworth's elementary).	Physiology (Lind); botany (Gray).	144
German: Gram. (Joynes-Meissner); reader (Joynes).	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist. (Fiske); civics; gen. hist. (Swinton).	Arith. and algebra (Nicholson); el. geometry (Burns).	Physiology (Walker)	145
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Greek and Roman hist. (Fredet).	Arith.; algebra to simple equations.		146
	U. S. hist	Arith.; algebra through quadratics.	Geography	147
	do	Same as for A. B. course.	Same as for A. B. course.	
	U. S. and English hist.	Arith.; el. algebra		148
	U. S. hist	Arith. (Wentworth); algebra to simple equations.		149
	Gen. hist.; civil government.	Algebra; geometry	Phys. geog	150
French or German (1 yr's work).	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Gen. hist. (Myers)	Arith. (Wentworth); plane geometry (Wentworth).	Physics (Steele)	151
		Algebra through quadratics; plane geometry.		
	U. S. hist.; gen. hist. to Middle Ages.	Same as for classical course.		
French: Gram. (Whitney); sight reading of simple prose. Or German: Sight reading of simple prose. (Optional with Latin.)	Same as for literary course.	do		152

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
153	Bowdoin College, Brunswick, Me.	A. B.	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; prose comp. (Collar); Cæsar, 4 bks.; Cicero, Orations against Catiline, for Archias and Manilian Law; Virgil, 6 bks.; translation at sight. Greek: Gram.; prose comp. (Woodruff); Anabasis, 4 bks.; Iliad, 2 bks.
		B. S. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
154	Bates College, Lewiston, Me.	A. B.	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; comp. (Jones); Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp. (Jones); Anabasis, 4 bks.; Iliad, 2 bks.; sight reading.
155	Colby University, Waterville, Me.	A. B.	do	Latin: Cæsar, 4 bks., or 3 bks. and Sallust's Catiline; Cicero, 7 orations; Virgil, 6 bks.; prose comp.; sight reading. Greek: Gram.; comp. (Jones); Anabasis, 3 bks.; Iliad, 2 bks.
156	St. John's College, Annapolis, Md.	A. B.	Gram.; comp.	Latin: Gram.; Cæsar, 4 bks.; Virgil, 2 bks.; prose comp. Greek: Gram.; Anabasis, 3 bks. (Optional with science.)
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course (optional with German). Greek: Same as for A. B. course.
157	Johns Hopkins University, Baltimore, Md.	A. B. (3 years' courses).	Requirements of Commission of New England Colleges.[a]	Latin: Cæsar, 5 bks.; Virgil, Eclogues and 6 bks. of Æneid; Ovid (Kelsey); Cicero, 4 orations against Catiline, de imperio Pompeii, pro Archia, and in Verrem, actio I; prose comp. Greek: Anabasis, 4 bks.; Iliad, 4 bks; Herodotus, book VII; prose comp. (Optional with French and German.)
158	Loyola College, Baltimore, Md.	A. B.	Gram. (Brown); comp.; Coppens's Practical Introduction.	Latin: Gram. (Alvarez); Cicero's letters; Nepos; comp.; Cæsar; Metamorphoses. Greek: Gram. (Yenal); Æsop's Fables; Lucian; Anabasis.

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Greek and Roman hist.	Arith.; algebra to logarithms (Wentworth); plane geometry.	.....	
French: Gram. (Whitney, Part I); prose comp. (Macmillan, Part I, pp. 1-76); 1,500 pp. of modern French: pronunciation. Or German: Gram.; 400 pages of prose and 40 pages of ballads or lyrics; pronunciation. (Optional with chemistry and advanced math. or with physics and advanced math.)	Roman hist.....	Same as for A. B. course. Also: Advanced algebra, solid geometry, and plane trigonometry. (See under modern languages.)	Gen. chemistry (Remsen's Introduction); el. qual. analysis. Physics (Gage's Elements); Hall and Bergen. (See under modern languages.)	153
French: Part I of Keetel's Collegiate Course.	Ancient hist	Arith.; algebra (Bradbury and Emery); plane geometry.	.....	154
.....	Hist. of Greece to death of Alexander (Myers); hist. of Rome to death of Marcus Aurelius (Allen); U. S. hist. (Johnson).	Arith.; algebra through quadratics; plane geometry.	.....	155
.....	U. S. hist. (Barnes); English hist. (Montgomery).	Arith.; algebra through quadratics (Wentworth).	El. physics, chemistry, zoology, or botany. (Optional with Greek).	
German: 2 yrs. work. (Optional with Latin.)	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	156
French: Gram. (Whitney, Part I); reader (Super, Parts II, III, IV); La Canne de Jonc (De Vigny). German: El. gram. (Otis); reader (Buchheim); Wilhelm Tell; Egmont; Minna von Barnhelm; Harzreise; Aus dem Staate Friedrichs des Grossen; prose comp. (Whitney). Or El. German and a year's work in French. (Optional with Greek.)	Hist. of England (Gardiner); U. S. hist. (Johnston); hist. of Greece (Oman); hist. of Rome (Allen).	Arith.; algebra: plane and solid geometry; plane trigonometry; analytic geometry.	El. chemistry (Remsen's Elements), or el. botany (Spaulding's Introduction), or phys. geog. (Hinman)	157
French or German (1 yr).	U. S. hist; modern hist. (Fredet).	Arith.; algebra.....	.....	158

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
159	Morgan College, Baltimore, Md.	A. B.....	Gram.; comp. rhetoric; American and English authors.	Latin: Gram.; Cæsar, 2 bks.; Cicero, 2 orations; Virgil, 1 bk. Greek: White's Lessons; gram.; Anabasis, 2 bks.
160	Washington College, Chestertown, Md.	A. B. and B. S.	Gram.: orthography.....	Latin: Collar and Daniell's First Book; Helvetian War of Cæsar.
161	Rock Hill College, Ellicott City, Md.	A. B. and B. S.	Gram. (Christian Brothers); rhetoric; comp.	Latin: Gram.; Cæsar, 4 bks.
162	St. Charles's College, Ellicott City, Md.	A. B.....	Gram. (Brown); comp.; Poe's Raven; Tennyson's Enoch Arden; Goldsmith's Deserted Village.	Latin: Collar and Daniell's Beginner's Book; prose comp.; Viri Romae; Phaedrus; Nepos; Lactantius' De Morte Persecutorum; Selecta ex Patribus Latinis. Greek: Gram. (Yenni); exercises (Breitter).
163	Mt. St. Mary's College, Mt. St. Mary's, Md.	A. B.....	Gram. (Bullion); comp. (Quackenbos); analysis; etymology (Sargent).	Latin: Gram.; comp.; Cæsar; Sallust's Catiline; Nepos; Viri Americæ. Greek: Gram.; comp.; Anabasis.
164	New Windsor College, New Windsor, Md.	A. B.....	Gram	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks. Greek: Gram.; Anabasis, 2 bks.
		B. S	Same as for A. B. course..	Same as for A. B. course..
		B. L.....	Gram.; elements of rhetoric; comp.; English classics.	.....
165	Western Maryland College, Westminster, Md.	A. B.....	Gram.; comp.....	Latin: Collar and Daniell's Beginner's Book.
166	Amherst College, Amherst, Mass.	A. B.....	Requirements of Commission of New England Colleges.a	Latin: Cæsar, 4 bks.; Cicero's Orations against Catiline and for Archias; Virgil, 6 bks.; sight translation; prose comp. Greek: Gram.; comp. (Jones, 20 exercises); Anabasis, 4 bks.; Iliad, 3 bks.; sight translation.
		B. S	Same as for A. B. course..	Latin: Cæsar, 4 bks.; Cicero, 3 orations, or Virgil, 2 bks.
167	Boston College, Boston, Mass.	A. B.....	Reader (Connolly); comp.	Latin: Gram. (Yenni); Nepos; Phædrus; comp.; Cæsar; Ovid's Metamorphoses. Greek: Gram. (Yenni); Anabasis; Cyropædia; Lucian.
		A. B.....	Requirements of Commission of New England Colleges.a	Latin: Cæsar, 4 bks.; Cicero, 5 orations; Virgil, 6 bks.; sight translation; prose comp. Greek: Anabasis, 4 bks.; Iliad; sight translation; prose comp.
168	Boston University, Boston, Mass.	Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; hist. of England; gen. hist.	Arith.; algebra; plane and solid geometry.	.....	159
.....	U. S. hist.; hist. of Maryland; gen. hist. (Myers).	Arith.; algebra to quadratics.	Descriptive and phys. geog.; physiology.	160
French or German (1 yr).	U. S. hist. (Sadlier); compendium (Kerney).	Arith.; el. algebra to quadratics; plane geometry, 3 bks.	.....	161
French: Gram. (Fasquelle); Recueil Choisi; Fleury's Catéchisme Historique.	Bible and church hist.	Arith. (Robinson)	Geography (Sadlier).	162
French; Fasquelle's Course; Joynes' Fairy Tales; Keetel's Course; Super's reader. German: Ahn's Course; Woodbury. Spanish: Monsanto.	U. S. hist. (Sadlier); modern hist. (Fredet); ancient hist. (Vuibert).	Arith. (Brooks); algebra (Ficklin).	.....	163
.....	U. S. hist.	Arith.; algebra, through quadratics.	.....	164
.....	Same as for A. B. course.	Same as for A. B. course. Also el. geometry.	El. nat. phil.; phys. geog.; chemistry and physiology.	
.....	.....do.....	Same as for A. B. course.	.....	
.....	U. S. hist. (Montgomery).	Arith.; algebra	.....	165
.....	Hist. of Greece to death of Alexander; hist. of Rome to death of Marcus Aurelius.	Arith.; algebra, through quadratics; plane geometry.	.....	166
French: Gram.; 400 pages of prose; comp. German: Gram.; 250 pages of text; comp.; sight reading.	Same as for A. B. course. Also hist. of England since 1461; U. S. hist.	Same as for A. B. course.	Physics (Gage's Introduction); chemistry (Richter, Remsen, or Harris).	
French or German: Gram. and reader.	Ancient hist. (Fredet); modern hist. (Fredet).	Algebra, through quadratics; plane and solid geometry.	Phys. geog. (Monteith).	167
French or German: Gram.; comp.; easy prose translation.	Greek hist. to death of Alexander (Smith's Smaller); hist. of Rome to death of Marcus Aurelius (Leighton).	Arith.; algebra, through quadratics; plane geometry.	.....	168
Same as for A. B. course. Also French or German: Advanced gram.; 3 classical dramas; 5 or 6 shorter modern stories; comp.	Same as for A. B. course.	Same as for A. B. course.	.....	

Requirements for admission to the freshman class o

	Institution.	Course.	English language.	Classical languages.
169	Harvard University, Cambridge, Mass.	A. B. *a*	Requirements of Commission of New England Colleges. *b*	Latin: Translation at sight of simple prose; gram. Greek: Translation at sight of simple Attic prose; gram.
		Adv'nc'd studies.	.....	1. Latin: Translation at sight of average passages from Cicero and Virgil. 2. Greek: Translation at sight of average passages from Homer, or of less difficult passages from both Homer and Herodotus. 3. Greek and Latin comp.
		B. S	Same as for A. B. course.	.....
170	French-American College, Springfield, Mass.	A. B	Composition on Merchant of Venice; King John; Ivanhoe; L'Allegro; Il Penseroso; Comus; Lycidas; Evangeline; Macaulay's Essay on Bunyan; Sumner's True Grandeur of Nations; George Eliot's Mill on the Floss; David Copperfield; Lorna Doone; Pilgrim's Progress.	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Ovid's Metamorphoses, 1,500 lines; gram.; prose comp. (Daniell); translation at sight of easy prose. Greek: Anabasis, 5 bks.; Iliad, 3 bks.; gram.
		B. S	Same as for A. B. course. Also advanced grammar.	Latin: Same as for A. B. course
171	Tufts College, Tufts College, Mass.	A. B	Requirements of Commission of New England Colleges. *b*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Ovid's Metamorphoses, 2,500 lines; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp. (Optional with advanced modern languages.)
		Ph. B	Same as for A. B. course.	Latin: Same as for A. B. course (optional with advanced modern languages and 3 elementary sciences).
		B. S	....do	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks. (Optional with French or German.)
		B. S. in engineering.	....do	.....

a Candidates are admitted by passing examinations in—(*a*) All the elementary studies and at least two advanced studies. (*b*) All the elementary studies except either German or French and at least three advanced studies. (*c*) All the elementary studies except either Greek or Latin, and at least four advanced studies, including mathematics or physical science. (*d*) All the elementary studies except either Greek or Latin and either German or French, and at least five advanced studies, including mathematics or physical science.

b See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Translation at sight of ordinary prose. German: Translation at sight of simple prose.	Hist. of Greece (Oman) and Rome (Allen), or hist. of U. S. (Johnston) and England (Gardiner).	Algebra, through quadratics; plane geometry.	Astronomy (Young's Lessons) and physics (Gage's Elements) or a course of 40 experiments performed at school by the pupil.	
4. German: Translation at sight of modern prose; gram.; comp. 5. French: Translation at sight of standard prose; gram.; comp.	.....	6. Logarithms; plane trigonometry; solid geometry. 7. Elements of analytic geometry; advanced algebra.	8. Physics (60 experiments in addition to those of elementary physics). 9. Chemistry (60 experiments in general chemistry actually performed at school by the pupil).	169
German or French: Translation at sight of simple German prose or ordinary French prose.	Same as for A. B. course.	Algebra, through quadratics; plane and solid geometry.	Astronomy (Young's Lessons) and physics (Gage's Elements or a course of 40 experiments performed at school by the pupil).	
French: Gram.: Larousse; comp.; dictation.	Hist. of Rome (Creighton); Greek hist. (Fyffe).	Arith.; algebra, through quadratics; plane geometry.	.....	170
Same as for A. B. course.	Hist. of Rome; hist. of England; France; American politics (Johnson).	Same as for A. B. course. Also, advanced arith.	Phys. geog.....	
El. German or French. Advanced German or French (optional with Greek).	Ancient hist., or mediæval and modern European hist., or hist. of England and U. S.	Arith.; algebra, through quadratics; plane geometry.	.....	
French and German.	Same as for A. B. course.	Same as for A. B. course.	El. physics, chemistry, and nat. hist. (optional with Latin).	171
Elementary and intermediate French or German (optional with Latin).	.....do.....	.....do.....	Chemistry or physics or physiology or botany or zoology or geology or drawing.	
El. German or French.	.....	Same as for A. B. course. Also, solid geometry.	Drawing.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
172	Williams College, Williamstown, Mass.	A. B.....	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 5 bks. and Bucolics or 7 bks. of Æneid; sight translation from Nepos and Ovid's Metamorphoses. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.; sight translation. (Optional with 2 yrs. of French or German or 1 yr. of French or German and 1 yr. of advanced mathematics.)
173	College of the Holy Cross, Worcester, Mass.	A. B.....	Gram. (Goold Brown); comp.	Latin: Gram. (Alvarez); Cæsar; Cicero's Letters; Ovid's Metamorphoses; Nepos; comp. Greek: Gram. (Yenni); Anabasis: Lucian.
174	Adrian College, Adrian, Mich.	A. B.....	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; prose comp. (Jones); Cæsar, 4 bks; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; Anabasis, 4 bks.; prose comp.
		B. S. and Ph. B.	Same as for A. B. course..	Three years of Latin and Greek or 2 yrs. of Latin and Greek and 1 yr. of French or German.
175	Albion College, Albion, Mich.	A. B.....	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; Cæsar, 6 bks.; Cicero, 6 orations; Ovid; comp. Greek: Gram. and lessons; Anabasis.
		Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course. Or Greek: Same as for A. B. course and Homer.
		B. S.....	.....do.....	Latin: Gram.; Cæsar, 6 bks.; comp. Or Greek: Gram. and lessons in place of 1 yr. of Latin.
		B. L.....	.....do.....	Latin: Same as for B. S. course.
176	Alma College, Alma, Mich.	A. B.....	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; Cæsar, 4 bks.; Cicero; Ovid; Virgil, 8 bks. of Æneid. Greek: Gram.; Anabasis; Odyssey.
		B. S.....	Same as for A. B. course..	Latin: Gram.; Cæsar, 4 bks.; Cicero, 3 orations.
		B. L.....	.....do.....	.....

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
See classical languages.	Hist. of Greece to death of Alexander (Oman); Hist. of Rome to reign of Augustus (Leighton).	Arith.; algebra, through quadratics; plane geometry. See classical languages.	.....	172
French: Gram. (Dufour); reader (Dufour).	Ancient hist. (Fredet); U. S. hist. (Sadlier).	Arith.; algebra.....	.....	173
.....	U. S. hist.; hist. of Greece (Smith); hist. of Rome (Leighton); civil government (Young).	Arith.; algebra, through quadratics; plane, solid, and spherical geometry.	Phys. geog.; physiology (Martin); physics (Gage).	174
See classical languages.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
German: Gram.; comp.; classics. (2 yrs. work.)	U. S. hist.; civil government; ancient hist.; Roman hist.	Algebra; geometry...	Botany; physiology; physics.	
German: 4 yrs. work.	Same as for A. B. course. Also mediæval and modern hist.	Same as for A. B. course.	Same as for A. B. course. Also chemistry.	175
Same as for Ph. B. course.	Same as for Ph. B. course. Also American hist.	.....do.....	Same as for Ph. B. course.	
German: Gram.; comp.	Same as for B. S. course.	.....do.....	.....do.....	
.....	Civil government; gen. hist.	Arith.; algebra; plane and solid geometry.	Physiology; nat. philosophy; chemistry.	
French or German: 2 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also botany; chemistry; phys. geog.	176
Same as for B. S. course.	Same as for A. B. course. Also U. S. hist.	.....do.....	Same as for B. S. course. Also astronomy.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
177	University of Michigan, Ann Arbor, Mich.	A. B......	Gram.; rhetoric; comp.; Milton's Paradise Lost, I and II; Pope's Iliad, I and XXII; Vicar of Wakefield; Southey's Life of Nelson; Tales of Sir Launfal; House of Seven Gables.	Latin: Gram.; prose comp.; Jones; Cæsar, 4 bks.; Cicero, 6 orations; Virgil's Æneid, 6 bks. Greek: Gram.; prose comp.; Jones; Anabasis, 4 bks.; Homer, 3 bks.
		Ph. B., B. S., and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		[illegible]	[illegible]	Four yrs. of Latin, or 4 yrs. of French, or 4 yrs. of German, or 2 yrs. of Latin with 2 years of French or German, or 2 yrs. of French and 2 yrs. of German.
		[illegible]	Same as for A. B. course. Also English literature Brooke's Primer.	Two yrs. of Latin, optional with French or German.
		Engineering	Gram.; comp.; rhetoric; English literature Brooke's Primer.	Latin: Jones's First Latin Book; Cæsar, 4 bks.; Cicero, [illegible] orations. Optional with French or German.
178	Battle Creek College, Battle Creek, Mich.	A. B......	Rhetoric; comp.; American literature.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 5 orations; Ovid; prose comp. Greek: Gram.; Anabasis.
		B. S......	Same as for A. B. course.	Latin: Same as for A. B. course.
179	Benzonia College, Benzonia, Mich.	A. B......	Requirements of Commission of New England Colleges.	Latin: Viri Romæ; Nepos; Cæsar, 4 bks.; Cicero, 7 orations; Ovid; Virgil, 4 bks. Greek: Primer Jones; prose comp. Jones; Anabasis, 4 bks.; Iliad, 2 bks.
		Ph. B......	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S......	......do......	Latin: Viri Romæ; Nepos; Cæsar, 4 bks.; Cicero, 7 orations.
		B. L......	......do......	....
180	Detroit College, Detroit, Mich.	A. B......	Gram. Goold Brown's; Coppens' Practical Introduction; comp.	Latin: Gram. (Yenni); Cæsar; Cicero's Letters. Greek: Gram. (Yenni); Æsop; Hierocles; Lucian.
181	Hillsdale College, Hillsdale, Mich.	A. B......	Gram.; comp.; rhetoric...	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Ovid; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 2 bks.
		B. S., Ph. B., and B. L.	Same as for A. B. course..	Latin: Same as for A. B. course. Or Greek as for A. B. course and 2 years of Latin.
182	Hope College, Holland, Mich.	A. B......	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Nepos; Cæsar; Cicero. (Optional.) Greek: White's Beginner's Book (optional).

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Gen. hist. (Myers)...	Algebra, through quadratics; plane and solid geometry.	Physics (Carhart and Chute's Elements); botany (Spalding's Introduction).	
French or German: 2 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
See classical languages.	Gen. hist.; U. S. hist.; civil government.	.....do.....	Same as for A. B. course. Also el. chemistry (Freer).	177
Two yrs. of French or German (optional with Latin).	U. S. and gen. hist.; civil government; English hist.	.....do.....	Same as above.....	
French: Gram.; comp.; easy French at sight. Or German: Gram.; comp.; sight reading and translation; Schiller's Wilhelm Tell. (Optional with Latin.)	Gen. hist. (Myers); U. S. hist. to the close of the Revolutionary war.	Algebra, through quadratics; plane and solid geometry; plane trigonometry.	Physics (Carhart and Chute's Elements); 2 of the following: Chemistry (Freer's Elementary); geology (Winchell); zoology (Packard); physiology (Martin); phys. geog. (Tarr); astronomy (Young).	
.....	Roman hist.; Biblical hist.	Arith.; algebra; plane, solid, and spherical geometry.	El. physics; el. anatomy; zoology; botany; astronomy.	178
.....	Same as for A. B. course. Also ancient hist.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Montgomery); Eng. hist.; gen. hist.	Arith.; algebra through quadratics; plane and solid geometry.	El. physics (Appleton).	
French: Gram.; comp.; modern prose; comedy; poetry. (2yrs. work.)	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	179
Same as for Ph. B. course.	.....do.....	.....do.....	El. physics; phys. geog.; botany; physiology.	
.....do.....	Same as for A. B. course. Also civil government; hist. of France; American institutions.	.....do.....	Same as for B. S. course.	
.....	Modern hist. (Fredet); U. S. hist. (Sadlier).	Arith.; algebra through radical expressions.	Phys. geog.....	180
.....	U. S. and ancient hist.; civil government.	Algebra; plane geometry.	El. physics, zoology, botany, and physiology.	
French: 1 yrs. work..	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	181
French: Gram.; authors. (Optional with Latin.) German: Gram.; authors. (Optional with Greek.) Dutch: Gram.; reading; translation.	American hist. Montgomery); gen. hist. (Myers); Greek hist. (Smith); English hist. (Montgomery); civil government (Young).	Arith.; algebra (school); plane geometry.	Phys. geog.; physiology; el. physics (Carhart and Chute); astronomy (Steele).	182

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
183	Kalamazoo College, Kalamazoo, Mich.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Viri Romæ; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 9 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.; Hellenica; Lysias; comp.
		Ph. B.	do	Latin: Same as for A. B. course.
		B. S	do	Latin: Collar and Daniell's First Book; Viri Romæ.
184	Olivet College, Olivet, Mich.	A. B	do	Latin: Gram.; Nepos; Cæsar; Virgil; Cicero; comp.; Roman hist. Greek: Gram.; Coy's Reader; Anabasis; Iliad; comp.
		Ph. B.	do	Latin: Same as for A. B. course.
		B. S	do	Latin: Gram.; Nepos; Eutropius; Cæsar.
185	St. John's University, Collegeville, Minn.	A. B.	Gram.; Reed and Kellogg's Higher Lessons; comp.	Latin: Gram. (Schultz); comp.; Historia Sacra; Viri Romæ. Greek: Gram. (Spiess and Seiffert).
186	Hamline University, Hamline, Minn.	A. B.	Gram.; analysis; comp	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks.; Cicero, 5 orations. Greek: Gram.; Anabasis, 3 bks.; Iliad, 1 bk.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
187	Augsburg Seminary, Minneapolis, Minn.	A. B.	Gram. (Morris); McGuffey's readers.	
188	University of Minnesota, Minneapolis, Minn.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 3 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram. (Brooks); Anabasis, 3 bks.
		B. S	Same as for A. B. course. (Optional: Latin element in English; hist. of English literature. A second year's work in English literature may be substituted for the Latin element in English.)	Latin: Same as for A. B. course. (Optional with French or German and part of English).
		B. L	Same as for B. S. course	Same as for B. S. course
		Engineering.	do	do

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.....	Arith.; algebra through quadratics; plane and solid geometry.	Physics: botany (Gray).	
French: Gram.; comp.; Le Proscrit; La Mare au Diable; La Bourgeois Gentilhomme; Pierre et Camille. Or German: Gram.; comp.; Studien und Plaudereien.	U. S. and gen. hist.; civil government.	Same as for A. B. course.	Same as for A. B. course. Also phys. geog.	183
French and German as for Ph. B. course.	Same as for Ph. B. course.	.....do.....	Same as for Ph. B. course. Also geology; astronomy; chemistry; physiology.	
.....	U. S. hist.; gen. hist...	Algebra to logarithms; plane and solid geometry.	Phys. geog.; botany; physics.	
French or German: 2 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	184
Same as for Ph. B. course.	Same as for A. B. course. Also civil government.	.....do.....	.....do.....	
German: Gram. (Wollinger); comp; Benziger's readers.	U. S. hist. (Hazzard) .	Arith.; algebra to Ch. XIII (Wentworth).	.....	185
.....	Hist. of Rome: hist. of Greece; U. S. hist.	Arith.; algebra through quadratics; plane and solid geometry.	.....	186
French, 1 yrs. work ..	Same as for A. B. course. Also gen. hist.	Same as for A. B. course.	El. physics; el. physiology.	
Norwegian: Gram. (Hofgaard); reader (Eriksen and Paulsen); comp.	Hist. of the World (Petersen); U. S. hist. (Barnes); civil government (Mowry).	Arith.; algebra (Wentworth's School).	Physiology; phys. geog. (Houston).	187
.....	U. S. hist. (Montgomery); hist. of Greece and Rome or English hist. or hist. of Europe in the Middle Ages.	Algebra through quadratics; plane and solid geometry.	Physiology (Martin) or botany or zoology; physics (Carhart and Chute) or chemistry.	
French: Telemaque, 2 bks.; gram.; comp.; Histoirettes Modernes (Fontaine); Le Français Pratique (Bercy). Or German: Gram.; prose (Boisen); Niebuhr's Heroen Geschichten; Sesenheim (Goethe). (Optional with Latin.)	Same as for A. B. course.	Same as for A. B. course.	Physiology or zoology; physics; drawing; chemistry (Remsen's Elements); botany (Gray's Lessons and Manual).	188
French or German (2 yrs. work) and Latin are optional with the German and French and optional English of the B. S. course.	.....do.....	.....do.....	Same as for A. B. course.	
Same as for B. S. course.	Same as for A. B. course. Also civil government.	.....do.....	Physics; chemistry; drawing; 2 of the following: Physiology; botany; astronomy; geology; zoology.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
189	Carleton College, Northfield, Minn.	A. B.	Gram.; comp.; requirements of Commission of New England Colleges, a except Pope's Iliad.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		B. L.	Same as for A. B. course. Also el. English literature.	Latin: Same as for A. B. course.
		B. S.	Same as for A. B. course. Also el. English literature optional with civil government.	Same as for B. L. course.
190	St. Olaf College, Northfield, Minn.	A. B.	Gram. (Whitney); rhetoric (Genung); comp.	Latin: Collar and Daniell's Beginner's Book; gram.; Cæsar, 4 bks.; Cicero, for Archias; prose comp.
191	Macalester College, St. Paul, Minn.	A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram. (Harkness); Cæsar, 4 bks.; Nepos; Cicero, 4 orations; Virgil, 4 bks.; prose comp. Greek: Gram.; Lessons; Anabasis, 4 bks.; prose comp. (Jones).
		A. B. and B. L.	Same as above	Latin: Same as above.
192	Gustavus Adolphus College, St. Peter, Minn.	A. B.	Gram.; comp.; Hawthorne's Mosses from an Old Manse; Tanglewood Tales; Stories from Grandfather's Chair; Franklin's Autobiography; Longfellow's Evangeline or Hiawatha; Tennyson's Idyls of the King.	Latin: Gram. (Harkness); Cæsar, 3 bks.; Virgil, 5 bks.; Cicero, 5 orations. Greek: Gram. (Goodwin); reader; Anabasis, 1 bk.
193	Parker College, Winnebago City, Minn.	A. B.	Analysis; el. rhetoric; English classics.	Latin: Gram.; Cæsar; Cicero; Virgil; comp. Greek: Lessons; Anabasis; comp.; Iliad.
		B. S. and Ph. B.	El. rhetoric	Latin: Gram.; Cæsar; Cicero; comp.
194	Mississippi College, Clinton, Miss.	A. B., B. S., and B. L.	Gram.; comp.; el. rhetoric.	Latin: Lessons; Cæsar (beginning).
195	Cooper-Huddleston College, Daleville, Miss.	A. B. and B. S.	Gram.; spelling; dictation.	Latin: Gram. (Bingham); Cæsar.
196	Rust University, Holly Springs, Miss.	A. B.	Gram.; comp.; rhetoric.	Latin: Gram.; Cæsar, 2 bks.; Cicero, 2 orations; Virgil, 6 bks. Greek: Gram.; Anabasis, 6 bks.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
197	Millsaps College, Jackson, Miss.	A. B.	Gram.; comp.; Franklin's Autobiography; Lady of the Lake.	Latin: Gram.; Viri Romæ; Cæsar. Greek: White's Beginner's Greek Book.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
198	University of Mississippi, University, Miss.	A. B. and Ph. B.	Reed and Kellogg's Higher Lessons; Abbott's How to Parse; Lockwood's Lessons in English; Eng. literature.	Latin: Collar and Daniell's Beginner's Book; Cæsar, 2 bks.; Cicero, 2 orations.
		B. S.	Same as for A. B. course.	
199	Central Christian College, Albany, Mo.	A. B., Ph. B., and B. S.	Gram. (Longman); rhetoric (Genung); comp. (Nichol); American literature.	Latin: Gram. (Harkness); Jones's Latin Lessons.
200	Northwest Missouri College, Albany, Mo.		Gram.	Latin: First book; Cæsar, 4 bks.
201	Southwest Baptist College, Bolivar, Mo.	A. B. and B. S.	Reed and Kellogg's Higher Lessons; gram. and comp. (Conklin).	Latin: Collar and Daniell's Beginner's Latin Book.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Greek and Roman hist.	Arith.; algebra through quadratics; plane geometry.	El. physics.....	189
.....	Gen. hist.....	Same as for A. B. course. Also solid geometry.	El. physics; anat. and physiology; el. astronomy or el. botany.	
.....	Gen. hist.: civil government (optional).	Same as for B. L. course.	Same as for B. L. course. Also el. chemistry.	
German: Gram. and reader (Joynes).	Gen. hist. (Myers); U. S. hist. (Johnston); civil government (Young).	Arith.; algebra through quadratics; el. geometry (Newcomb).	El. physics (Gage); botany (Wood); physiology (Hutchison); phys. geog. (Guyot).	190
.....	U. S. hist. (Johnston); gen. hist. (Myers); hist. of Greece (Oman); hist. of Rome (Allen); civil government (Fiske).	Arith.; algebra through quadratics; plane and solid geometry.	Physiology (Martin); phys. geog.; el. biology or botany; el. physics (Carhart and Chute).	191
German: Gram.; reader; prose comp.	Same as above.....	Same as above.....	Same as above.....	
.....	U. S. hist. (Fiske); oriental hist. (Myers); church hist.; civil government (Young).	Arith.; algebra to quadratics; plane geometry.	Phys. geog. (Maury); el. physics (Gage); physiology (Martin).	192
.....	U. S. hist.; ancient hist.; civil government; hist. of Rome; hist. of Europe.	Arith.; algebra; plane geometry.	Physiology; phys. geog.; el. physics.	193
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Civil government; U. S. hist.	Arith.; el. algebra ...	Physiology; el. physics.	194
.....	U. S. hist. (Chambers); civil government.	.....do.....	Phys. geog.....	195
.....	U. S. hist.; ancient, mediæval and modern hist.; civil gov't.	Algebra through quadratics; plane and solid geometry; arith.	Phys. geog.; el. physics; botany; political econ.	196
French and German: Gram.; translation at sight of simple exercises.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	American hist. (Cooper); English hist.; gen. hist. (Barnes).	Arith.; algebra (school).	.....	197
.....	Same as for A. B. course. Also civil gov't (Macy).	Same as for A. B. course.	Phys. geog. (Maury)	
.....	.....	Arith.; algebra to quadratics; plane geometry, 4 bks.	.....	198
.....	.....	Same as for A. B. course.	.....	
.....	Gen. hist.....	Algebra.....	.....	199
.....	.....	Arith.; elements of algebra.	.....	200
.....	U. S. hist. (Barnes); civil government (Townsend).	Arith.; algebra (Wentworth's elements).	Phys. geog. (Guizot); physiology (Steele)	201

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
202	Pike College, Bowling Green, Mo.	A. B. and B. L.	Gram.; higher lessons; analysis; comp.	.....
		A. B.....	Gram.; comp.....	Latin: Groves' exercises; Cæsar, 4 bks.; Cicero; Virgil; prose comp. Greek: Gram.; Anabasis, 3 bks.
203	Missouri Wesleyan College, Cameron, Mo.	B. L.....	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. S	.....do.....	Same as for B. L. course ..
204	Christian University, Canton, Mo.	A. B.....	Gram.; analysis.....	Latin: Gram.; Cæsar. Greek: Inductive method; Anabasis.
		B. S. and B. L.	Same as for A. B. course ..	Latin: Same as for A. B. course.
		A. B.... .	Requirements of Commission of New England Colleges. a	Latin: Cæsar, 5 bks.; Cicero, 4 orations; prose comp. (Allen). Greek: White's Beginner's Book: reading.
205	University of the State of Missouri, Columbia, Mo.	B. L	Same as for A. B. course ..	Latin: Same as for A. B. course.
		B. S. and engineering.	.....do.....	.....
		B. Agr....	Language lessons (Hyde); comp.	.....
206	Grand River Christian Union College, Edinburg, Mo.	A. B. and B. S.	Gram.; comp.....	.....
207	Central College, Fayette, Mo.	A. B.....	Gram.; analysis; rhetoric; comp.; literature; 2 plays of Shakespeare; Ivanhoe; Evangeline; Milton's L'Allegro and Il Penseroso; Irving's Sketch Book; Macaulay's Essays on Milton and Johnson.	Latin: Cæsar; Cicero, 2 Catiline orations; prose comp. Greek: Beginner's Book; Anabasis; prose comp.
		B. S	Same as for A. B. course ..	Latin: Same as for A. B. course.
208	Westminster College, Fulton, Mo.	A. B.....	Gram.; comp.; Merchant of Venice; Tennyson's Princess; Macaulay's Essay on Milton.	Latin: Nepos; Cæsar; prose comp.; prosody. Greek: Gram.; Anabasis; prose comp. (Jones).
209	Pritchett School Institute, Glasgow, Mo.	A. B.....	Higher lessons (Reed and Kellogg); comp.; literature.	Latin: Gram.; Nepos; Cæsar; Cicero. Greek: 1 yrs. work.
		B. S	Same as for A. B. course ..	Latin: Same as for A. B. course.
210	Ozark College, Greenfield, Mo.	A. B.....	Gram.; comp.; Julius Cæsar; De Coverley Papers; Courtship of Miles Standish; David Copperfield.	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 6 orations, including that for Archias and the Manilian Law; Virgil, 6 bks. Greek: Gram.; White's Lessons; Anabasis, 3 bks; Iliad, 3 bks.
		Ph. B.....	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.....	.....do.....	.....
211	Lagrange College, Lagrange, Mo.	A. B.....	Gram.; comp.; literature.	Latin: Collar and Daniell's First Book; Cæsar; Virgil; prose comp. Greek: White's Beginner's Book.
212	Presbyterian College of Upper Missouri, Lawson, Mo.	A. B.....	Gram.; reading; spelling; penmanship.	.....
213	William Jewell College, Liberty, Mo.	A. B.....	Gram.; rhetoric; comp.; introduction to American literature.	Latin: Gram.; comp.; Cæsar, 4 bks. Greek: Gram. (optional).

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist	Arith	.....	202
.....	U. S. hist.; civil government; English hist.; Grecian and Roman hist.	Arith.; algebra; plane and solid geometry.	Botany	203
German	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
Same as for B. L. course.	U. S. and English hist.; civil government.	.....do	Botany; chemistry; descriptive anatomy.	
.....	U. S. hist.; ancient, mediæval, and modern hist.; civil government.	Arith.; algebra through simple equations.	Phys. geog	204
.....	Same as for A. B. course.	Arith.; algebra; plane geometry.	.....do	
.....	Greek, Roman and modern hist.	Algebra (Smith's Elementary); plane geometry (Wentworth).	.....	
.....	Same as for A. B. course.	Same as for A. B. course.	Biology, or physics or chemistry.	205
French and German: Read prose at sight; comp.	.....do	.....do	Two of the following: Biology, physics, chemistry.	
.....	U. S. hist. (Barnes) ...	Arith. (Ray's Practical).	Descrip. and political geog.	
.....	U. S. hist.; civil government.	Arith.; el. algebra	Geography	206
.....	U. S. and English hist.; Greek and Roman hist.	Algebra through quadratics; plane geometry.	El. physiology; el. physics.	207
.....	Same as for A. B. course; also civil government.	.....	Same as for A. B. course; also, phys. geog.	
.....	U. S. and gen. hist.; Greek and Roman hist.; civil government.	Arith.; algebra to quadratics.	El. physics; phys. geog.	208
.....	U. S. hist. (Montgomery).	Arith.; algebra; plane geometry.	Phys. geog.; botany; physiology.	209
Elementary German .	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; gen. hist. (Swinton).	Arith.; algebra through quadratics; plane geometry.	Phys. geog.; physiology.	210
German: Gram.; Grimm's Mærchen; Nathan Der Weise; Wilhelm Tell.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
Same as for Ph. B. course; also French: Gram.; l'Abbe Constantin.	.....do	.....do	.....do	
.....	U. S. and English hist.; civil government.	Arith.; algebra; plane geometry.	Physiology; phys. geog.	211
.....	U. S. hist	Arith	Descrip. geog	212
.....	U. S. and gen. hist	Arith.; algebra; plane geometry.	Phys. geog.; el. physiology.	213

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
214	Missouri Valley College, Marshall, Mo.	A. B.	Gram.; comp.; el. rhetoric: English literature.	Latin: Gram.; comp.; Nepos; Cæsar; Virgil; Cicero; sight reading. Greek: Gram.; Anabasis; Memorabilia; Iliad; comp.; sight reading.
		Ph.B. and B.L.	Same as for A. B. course.	Latin: Same as for A. B. course.
215	Morrisville College, Morrisville, Mo.	A. B.	Gram.; comp.; rhetoric (Hart).	Latin: Harper's Inductive Method. Greek: Harper's Inductive Method.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	....do....	
216	Park College, Parkville, Mo.	A. B. and B. L.	Gram. (Reed and Kellogg); comp.; American literature; rhetoric (Raub).	Latin: Gram.; Cæsar; Cicero; Sallust; Virgil. Greek: Lessons; Anabasis; gram.
217	Christian Brothers College, St. Louis, Mo.	A. B.	Gram. (Azarias); Irving's Sketch Book; Evangeline; Charles D. Warner's A Hunting of the Deer.	Latin: Gram.; Cæsar; Viri Romæ; Avellanus's Palæstra. Greek: White's First Greek Book.
218	St. Louis University, St. Louis, Mo.	A. B.	Gram. (Goold Brown); comp.; Coppens's Practical Introduction.	Latin: Gram. (Yenni); Historia Sacra; Cæsar; Cicero; comp. Greek: Gram. (Yenni); Æsop; Hierocles; Lucian.
219	Washington University, St. Louis, Mo.	A. B.	Penmanship: correct spelling, punctuation, and use of capitals; proper construction of sentences; clearness and conciseness of expression.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp. (Optional with science or French or German.)
		Engineering.	Same as for A. B. course.	.....
220	Drury College, Springfield, Mo.	A. B.	Higher Lessons (Kellogg); comp.; Julius Cæsar; Merchant of Venice; Ivanhoe; Evangeline; Irving's Sketch Book.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 3 bks. ad, 2 bks.; prose comp.
		B. S.	Same as for A. B. course. See also classical languages.	Latin: Same as for A. B. course, or, instead of Virgil, French gram. and 100 pages of prose or solid geometry, plane trigonometry and rhetoric may be offered.
221	Tarkio College, Tarkio, Mo.	A. B.	Gram.; Lockwood's Lessons; literature.	Latin: Cæsar; Cicero; Virgil. Greek: White's Beginner's Book.
		B. S.	Same as for A. B. course.	Latin: Cæsar; Cicero.
222	Avalon College, Trenton, Mo.	A. B.	Gram.; Lessons (Reed and Kellogg); comp.; literature.	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis; Iliad.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	....do....	.....
223	Central Wesleyan College, Warrenton, Mo.	A. B.	Gram.; analysis; classics.	Latin: Gram.; Viri Romæ; Cæsar; Cicero; Virgil. Greek: 1 yrs. work.
		B. S. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Greek hist.; U. S. and gen. hist.	Arith.; algebra; plane, solid, and spherical geometry.	Physiology; phys. geog.; el. physics; physiography; el. science.	214
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Montgomery).	Arith.; algebra.....	Physics (Gage); zoology (Tenney); botany (Gray).	215
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	do.....	do.....	do.....	
.....	U. S. hist.; civil government; Greek and Roman hist.	Arith.; algebra; geometry (White).	Phys. geog.; physiology.	216
.....	Hist. of England.....	Arith.; algebra and geometry (Wentworth).	Phys. geog. (Maury).	217
.....	U. S. hist. (Sadlier); modern hist. (Fredet).	Arith.; algebra through radicals.	Phys. geog.....	218
French or German: Gram.; sight reading. (2 yrs. work.) German or French (optional with Greek or science).	U. S. hist.; hist. of England; Greek and Roman hist. (Pennell).	Algebra through quadratics; el. plane geometry.	El. chemistry and physics or chemistry or physics and solid geometry and plane trigonometry or el. zoology and botany. (Optional with Greek or French or German.)	219
French or German: Sight reading; comp.	U. S. hist.; hist. of England.	Algebra through quadratics; plane and solid geometry.	El. chemistry (Remsen and 30 experiments) or el. physics (Gage and 40 experiments); drawing.	
.....	U. S. hist. (Montgomery); ancient hist. (Myers).	Arith.; algebra through quadratics; plane geometry.	.....	
See classical languages.	Same as for A. B. course.	Same as for A. B. course. See also classical languages.	.....	220
German (1 yrs. work).	U. S. hist.; civil government; Roman hist.	Arith.; algebra; plane geometry.	Physiology; phys. geog.; el. physics.	221
.....	Same as for A. B. course.	Arith; el. algebra....	Same as for A. B. course.	
.....	U. S. hist.; civil government; mod. hist.; hist. of England.	Arith.; algebra (Schuyler).	Physiology; phys. geog.; natural philosophy.	
German; Gram.; comp.; Tell; Nathan Der Weise; Maria Stewart.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	222
.....	U. S. hist.; civil government.	Arith.; el. algebra.....	.....do.....	
German: 2 yrs. work.	U. S. hist.; civil government.	Arith.; algebra; plane and solid geometry.	Phys. geog.; physiology.	223
German: 3 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
224	College of Montana, Deer Lodge, Mont.	A. B.	Gram.; analysis; rhetoric.	Latin: Lessons; Nepos; Cæsar; Cicero; Virgil. Greek: Lessons; Xenophon; Thucydides.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course. Greek: Optional with French or German.
		B. S. and engineering.	....do....	
225	University of Montana, Missoula, Mont.	A. B., Ph. B., and B. S.	Gram.; comp.; rhetoric; American literature.	Latin: Gram.; Cæsar; Cicero; comp.; sight reading.
		M. E.	Same as above.	
226	University of Omaha, Bellevue, Nebr.	A. B.	Gram.; analysis; rhetoric; literature.	Latin: Gram.; Cæsar, 5 bks.; Cicero, 9 orations; Virgil, 6 bks. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
227	Cotner University, Bethany, Nebr.	A. B.	Studies in English; el. rhetoric.	Latin: Gram.; Cæsar; Sallust. Greek or German (1 yr.).
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
228	Union College, College View, Nebr.	A. B.	Rhetoric.	Latin: First Lessons; Cæsar, 4 bks.; Cicero, 6 orations; prose comp.; Ovid. Greek: First Lessons; Anabasis, 1 bk.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
229	Doane College, Crete, Nebr.	A. B.	Reed and Kellogg's Higher Lessons; Lockwood's Lessons; rhetoric (Hill); American lit. (Richardson's Primer); English lit. (Brooke's Primer); Ivanhoe; Tale of Two Cities; Tom Brown's School Days; Irving's Sketch Book; Besant's Children of Gideon; Lady of the Lake.	Latin: Gram.; Cæsar; Cicero, 4 orations; Virgil, 5 bks.; Ovid; comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 2 bks.; comp.
		B. S.	Same as for A. B. course.	Latin: Gram.; Cæsar; Cicero, 4 orations; comp.
230	Fairfield College, Fairfield, Nebr.	A. B. and Ph. B.	Gram.; analysis; comp....	Latin: Gram.; Cæsar.....

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	American hist.....	Algebra; plane and solid geometry.	.....	224
French or German: Optional with Greek.	Same as for A. B. course.	Same as for A. B. course.	.....	
French or German: 1 yr's. work.	.....do	.....do	Phys. geog	
.....	U. S. hist.; civil government of U. S. and Montana.	Arith.; algebra; plane geometry.	.....do	225
.....	Same as above.....	Same as above.....	Free-hand drawing .	
German or French (optional).	American hist.; gen. hist. Optional: English hist.; French hist.	Arith.; algebra: plane and solid geometry.	Phys. geog. (optional); drawing; hygiene.	226
German or French (1 yr's. work).	Same as for A. B. course.	Same as for A. B. course.	Hygiene; drawing; physics; chemistry; phys. geog. Optional: Botany.	
German or Greek (1 yr.).	Gen. hist.....	Algebra; geometry ..	Physiology; drawing; nat. phil.; botany; phys. geog.	227
German	.....do	Same as for A. B. course.	Same as for A. B. course.	
.....	Antediluvian hist	Algebra.....	El. astronomy; el. physics; botany; physiology.	228
German, Spanish, or French.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; Greek and Roman hist. (Sheldon).	Arith.; algebra; geometry, 8 books.	Zoology (Colton); botany (Gray, Bessey).	229
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also, physics (Shaw); astronomy (Young); chemistry (Remsen).	
.....	U. S. hist.; civil government.	Arith.; algebra.....	Phys. geog.; drawing; physiology.	230

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
231	University of Nebraska, Lincoln, Nebr.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp.; prosody. Greek: Anabasis, 4 bks.; Homer, 3 bks.; prose comp. (Optional with French or German and botany, chemistry, and physics.)
		B. S. (including engineering).	Same as for A. B. course.	Latin: Cæsar, 4 bks.; Cicero, 6 orations; prose comp. (Optional with French or German.)
232	Gates College, Neligh, Nebr.	A. B.	Gram.; analysis.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		B. S.	Gram.; analysis; el. rhetoric.	Latin: Same as for A. B. course.
233	Creighton University, Omaha, Nebr.	A. B.	Gram. (Goold Brown); Coppens' Practical Introduction; comp.	Latin: Gram. (Yenni); Historia Sacra; Cicero; Cæsar; prose comp. Greek: Gram. (Yenni); Æsop; Hierocles; Lucian.
234	Nebraska Wesleyan University, University Place, Nebr.	A. B.	Gram.; el. rhetoric; comp.	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: White's Beginner's Book; Anabasis; Herodotus.
		Ph. B.	Same as for A. B. course. Also: El. literature.	Latin or Greek: Same as for A. B. course.
		B. S.	Same as for Ph. B. course.	Latin: Gram. and Lessons.
235	York College, York, Nebr.	A. B.	Gram.; comp.; literature.	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis; Herodotus; Iliad.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: 600 pages, using Van Daell's Reader; Verne's Le Tour du Monde; Thiers's Expédition de Bonaparte en Egypte; Lamartine's Graziella; Halévy's L'Abbé Constantin. Or German: 3 of the following: Andersen's Märchen; Andersen's Bilderbuch ohne Bilder; Putlitz's Was sich der Wald erzählt; Joynes's Reader; Storms' Immensee; Leander's Träumereien. (Optional with Greek.)	Greek and Roman hist. or gen. European hist.; civil government (Fiske).	Algebra through quadratics; plane and solid geometry.	El. physiology and hygiene. El. physics (Gage), el. chemistry (Remsen), and el. botany. (Optional with Greek.)	231
Same as for A. B. course, with an additional year's work in literature. (Optional with Latin.)	Same as for A. B. course.	Algebra, including logarithms; plane and solid geometry.	El. physiology and hygiene; el. physics; el. chemistry; el. botany.	
.....	U. S. and gen hist.; Greek and Roman hist.; civil government.	Arith.; algebra through quadratics; plane, solid, and spherical geometry.	Phys. geog.; political geog.	232
German: Gram.; Worman's First Book; Bernhardt's Sprach und Lese-Buch; Grimm's Maerchen.	U. S. hist.; gen. hist.; Roman hist.; civil government.	Same as for A. B. course.	Phys. and polit. geog.; physiology (Martin); physics (Gage).	
.....	U. S. hist. (Sadlier); modern hist. (Fredet).	Arith.; algebra through radicals.	Phys. geog.....	233
.....	U. S. hist.; civics; gen. hist.	Arith.; el. algebra; plane and solid geometry.	Physiology; physics.	
.....	Same as for A. B. course.	Same as for A. B. course.	Physiology; phys. geog.; physics; el. chemistry.	234
German: 1 yr's. work.	.....do.....	.....do.....	Same as for A. B. course. Also, zoology.	
.....	.....	Arith.; algebra; geometry.	Physics; phys. geog.; botany; chemistry.	
German: 2 yrs. work.	.....	Same as for A. B. course.	Same as for A. B. course.	235

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
236	Nevada State University, Reno, Nev.	A. B.	Gram.; rhetoric; Sketch Book; Snow Bound; Sir Roger de Coverley; Rasselas; Picciola; Carlyle's Choice of Books; House of Seven Gables; Talisman; Macaulay's Essays on Chatham and Hastings and Lays of Ancient Rome; Dickens' Christmas Carols and Tale of Two Cities; Lady of the Lake; Vision of Sir Launfal; Merchant of Venice; Julius Cæsar; Emerson's Essays on Beauty, Culture, Behavior.	Latin: Collar and Daniell's Beginner's Book; Collar's Gradatim; Nepos; Collar's Gate to Cæsar; Kelsey's Cicero.
		B. S., including Engineering.	Same as for A. B. course	----------
237	Dartmouth College, Hanover, N. H.	A. B.	Requirements of Commission of New England Colleges.a	Latin: Gram.; Cæsar, 4 bks., or Sallust's Jugurtha and Catiline, or Cæsar's Civil War, 3 bks.; Cicero, 6 orations; Ovid's Metamorphoses, 4,000 lines, or Virgil's Georgics, or Georgics, Books I-II, and Eclogues; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.; sight translation.
		B. L.	Same as for A. B. course	Latin: Same as for A. B. course.
		B. S.	----do----------	----------
238	Rutgers College, New Brunswick, N. J.	A. B.	Requirements of Commission of New England Colleges.a	Latin: Gram.; comp.; Cæsar, 4 bks., or Civil War, or Nepos; Cicero, 6 orations; Sallust's Catiline; Virgil, 6 bks., or 5 bks. and Eclogues. Greek: Gram.; Anabasis, 3 bks.; Iliad or Odyssey, 3 bks.; comp.
		B. S.	Same as for A. B. course	----------
239	Princeton University, Princeton, N. J.	A. B.	Requirements of Commission of New England Colleges.a	Latin: Gram.; comp.; Cæsar, 5 bks.; Virgil, 6 bks.; Cicero, 9 orations. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks., or 5th, 6th, and 3 chapters of 7th bk. of Anabasis, or Herodotus, 7th bk. of history, sections 1-60 and 172-239.
		B. S.	Gram.; comp.; Twice Told Tales; Silas Marner; Marmion; Macaulay's Life of Samuel Johnson.	Latin: Gram.; comp.; Cæsar, 5 bks.; Cicero, 4 orations.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	English hist.; U. S. hist.; gen. hist.; civil government.	Arith.; algebra; plane geometry.	Phys. geog.; physics.	226
French: 2 yrs. work..	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Greek hist. to death of Alexander (Myers); Roman hist. to death of Marcus Aurelius; U.S. hist. (Johnston).	Arith.; algebra to quadratics; plane geometry.	.....	
French: Gram.; comp. (Grandgent); 500 pages of prose and poetry. Or German: Gram. (Joynes-Meissner); 300 pages of prose and poetry.	Same as for A. B. course.	Arith.; algebra through quadratics; plane geometry.	Phys. geog. (Guyot); physiology (Martin); botany (Gray).	227
Same as for B. L. course.	.....do.....	Arith.; algebra; through quadratics; plane and solid geometry; plane trigonometry.	Same as for B. L. course. Also: El. physics (Gage); chemistry (Bartlett's Laboratory Exercises, Parts I-V).	
French or German: Gram.; ability to pronounce correctly, common irregular verbs.	Rome (Allen); Greece (Smith); U.S. (Johnston).	Arith.; algebra through quadratics; plane geometry (Bowser, 4 bks.).	Descrip. and phys. geog.	228
.....	U.S. hist.....	Arith.; algebra through progressions; plane and solid geometry.	Same as for A. B. course. Also: Physics (Wells); chemistry (Remsen).	
French or German: El. gram.; comp.; translations.	.....	Arith.; algebra, including progressions and binomial theorem; plane geometry.	.....	229
French: Gram. (Otto, pp. 28-201); reader (Super, 50 pp.). German: Gram. (Otto, pp. 18-253); Grimm's Märchen (Otis, pp. 1-49).	U.S. hist. (Johnston).	Same as for A. B. course. Also, solid geometry, including cylinder and cone.	.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
240	Seton Hall College, South Orange, N. J.	A. B.	Gram.; comp.	Latin: Gram.; comp.: Cæsar; Nepos. Greek: Gram.: reader; Anabasis; comp.
		A. B. and Ph. B.	Gram.; rhetoric; comp.: Sketch Book: Thanatopsis: Evangeline; Snow Bound: Ivanhoe; Our Mutual Friend.	Latin: Gram.; comp.: Cæsar, 4 bks.; Cicero, 6 orations: Virgil, 6 bks. Greek: Gram.; Anabasis, 3 bks.: Iliad, 3 bks.: comp.
241	Alfred University, Alfred, N. Y.	B. S.	Same as for A. B. course.	Latin: Gram.; Cæsar, 4 bks.; comp. Greek: Gram.; reader.
		Ph. B.	Same as for A. B. course. Also reading books recommended by Commission of New England Colleges. *a*	Latin: Same as for A. B. course.
242	St. Bonaventure's College, Allegany, N. Y.	A. B.	Brown's First Lines; comp.	Latin: Gram. (Bullion); Historia Sacra; Viri Romæ. Greek: Gram. (Bullion).
243	St. Stephen's College, Annandale, N. Y.	A. B.	Gram.	Latin: Gram.; Cæsar, 4 bks.; Virgil, 6 bks., and Eclogues; Cicero, 6 orations; Sallust's Catiline; comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks.
244	St. Francis College, Brooklyn, N. Y.	A. B.	Gram. (Brown); comp.; rhetoric.	Latin: Gram.; First Year (Harkness); Historia Sacra; Cæsar, 4 bks.; Phædrus; Cicero, De Amicitia; comp. Greek: Gram.; First Year (Harkness); Acts of the Apostles.
		A. B.	Gram.; comp.; letter-writing; selections from authors.	In place of the modern languages students may offer the amount of Greek and Latin usually required for entrance by the average New England college. For either of the modern languages an equivalent amount of Latin will be accepted.
245	Polytechnic Institute of Brooklyn, Brooklyn, N. Y.	B. S.	Same as for A. B. course.	Latin may be offered in place of a modern language.
246	Canisius College, Buffalo, N. Y.	A. B.	Gram.; rhetoric; comp.; King John; Dream of Gerontius (Newman); Evangeline; Webster's First Bunker Hill Oration; Selections from the Spectator (Addison); Plague in London (Defoe); Life of Samuel Johnson (Macaulay); Ancient Mariner; Thanatopsis; Milton's Lycidas; Sonnets.	Latin: Gram.; comp.; conversation; Cæsar, 4 bks.; Cicero; Ovid's Metamorphoses; Virgil, Eclogues and 1 bk. of Georgics or an equivalent from the Æneid. Greek: Gram.; comp.; Anabasis, 4 bks.; Odyssey or Iliad.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	U. S. hist.: universal hist.	Arith	Elements of natural science.	240
	U. S. hist. to end of Civil War; Greece to B. C. 403; Rome to B. C. 88.	Algebra through proportion; plane geometry (Wentworth, 5 bks).	Physiology (Martin).	241
German and French: 1 yr.'s work in each.	U. S. hist. to end of Civil War.	Same as for A. B. course.	Phys. geog. (Houston; physics (Steele).	
German or French: 1 yr.'s work.	Same as for A. B. course.	do	Same as for A. B. course.	
	Ancient hist. (Fredet).	Arith	Bookkeeping	242
		Arith.; algebra to quadratics; plane geometry, 6 bks.	Geog	243
French: Henn's Introductory and Second Courses. German: Oehlschlager; reader.	U. S. hist.; ancient hist. (Fredet).	Arith.; algebra to cube root; plane geometry.	Bookkeeping; geog.	244
French: Gram.; comp.; La Belle Nivernaise; Michel Strogoff; La Perle Noire. German: Gram.; comp.; Grimm's Märchen; Wilhelm Tell; Bernhardt's Novelletten Bibliothek.	U. S. hist.; hist. of England.	Arith.; algebra to logarithms (Wells); Davies's Legendre, 5 bks.	El. physics	245
French or German as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
German: Bacon's Leitfaden; comp.; conversation.	U. S. hist.; Oriental monarchies and Greek hist.; Roman hist.; Middle Ages.	Arith.; algebra through quadratics; plane and solid geometry.		246

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
247	St. Lawrence University, Canton, N. Y.	A. B.	Comp.; Merchant of Venice; Twelfth Night; Evangeline; Vision of Sir Launfal; Webster's Reply to Hayne; House of Seven Gables; Princess; Abbot; Southey's Life of Nelson.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 4 orations.
		B. S.	do	Same as for B. L. course (optional with French or German).
248	Hamilton College, Clinton, N. Y.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; comp.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 6 orations; Sallust's Catiline or Jugurthine War or Virgil's Eclogues. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 2 bks.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
249	Hobart College, Geneva, N. Y.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; Cæsar, 4 bks., or Sallust's Catiline and Jugurthine War; Virgil, 6 bks.; Eclogues and Georgics, 2 bks.; Cicero, 7 orations; comp. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. S. and B. L.	Same as for A. B. course.	Latin (optional): Same as for A. B. course, omitting 1 bk. of Cæsar, the Eclogues and Georgics of Virgil, and 1 oration of Cicero.
250	Colgate University, Hamilton, N. Y.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		B. S.	do	Latin: 2 years' work (optional with French or German).

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	Ancient hist. (Myers); American hist.	Arith.; algebra to quadratics; plane geometry.	Physiology (Martin)	
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	do	do	do	
French: Gram.; 100 pages of Fleury's Mythologie des Grecs et des Romains; Athalie; Le Roman d'un Jeune Homme Pauvre; La Neuvaine de Colette. Or German: Collar's Eysenbach; Andersen's Fairy Tales; Jungfrau; Freytag's Soll und Haben (Bultman).	do	do	do	247
	Greek and Roman antiquities; U. S. hist.	Arith.; algebra through quadratics; plane geometry.		
French: Gram.; reader (Super, 50 pages). German: Gram.; reader (Brandt, 50 pages); Lodeman's exercises, 1st series.	Roman antiquities; U. S. hist.; gen. hist.	Same as for A. B. course.		248
	Ancient Roman hist. (Pennell); Ancient Greece (Pennell); hist. of U. S. and England; Rome (Allen); Greece (Oman).	Arith.; algebra through quadratics; geometry (Wentworth, 6 bks.).		249
French and German: Easy reading at sight.	Greece; Rome; U. S.; England.	Same as for A. B. course.		
	U. S. hist. (Doyle); Greece (Oman); Rome (Allen).	Arith.; algebra (Taylor's academic); plane geometry.	Physiology	
French: Gram.; sight translation; 300 pages of reading. Or German: Gram.; sight translation; 200 pages of reading.	Same as for A. B. course. Also: England (Thompson).	Same as for A. B. course.	Same as for A. B. course.	250
French and German as for A. B. course (Latin may be offered in place of French or German).	Same as for Ph. B. course.	do	Physiology; el. physics; chemistry through nonmetals.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
251	Cornell University, Ithaca, N. Y.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar or Nepos; Virgil, 6 bks.; Cicero, 6 orations. Greek: Gram.; comp.; Anabasis, 2 bks.; Iliad, 2 bks.
		do	Same as above	Latin: Same as above
		do	do	
		Engineering and architecture.	do	
252	College of St. Francis Xavier, New York, N. Y.	A. B.	Gram. (Brown); comp.; rhetoric (Coppens); Lady of the Lake; Princess; Brewster's Specimens of Narration; Baldwin's Specimens of Description; Gray's Elegy, etc.	Latin: Gram.; comp.; Cicero, letters, history I, II; Nepos, lives; Phædrus, Fables; Cæsar's Commentaries; Ovid; Virgil, Eclogues and Georgics. Greek: Gram. (Yenni); comp.; Æsop's Fables; Lucian, Dialogues; Anabasis.
253	Columbia University, New York, N. Y.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; prosody; Cæsar, 5 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		do	Same as above	Latin: Same as above
		B. S. and engineering.	do	

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Two of the following: American hist.; Greece to death of Alexander; Rome to accession of Commodus; English hist.	Arith.; algebra through quadratics, radicals and theory of exponents: plane geometry.	Polit. and phys. geog.; physiology.	
French: Translation at sight of standard French, about 1,000 pages should be read; translation into French of connected English prose gram. Or German: More advanced gram.; translation at sight of ordinary German; comp.; about 700 pages, including 500 pages of classical prose and poetry, should be read.	Same as above.....	Same as above.....	Same as above.....	251
French and German as above.	....do.....	Same as above. Also: Solid geometry; advanced algebra; plane and spherical trigonometry.	.....do.....	
French: Gram.; translation of 19th century prose; translation from English into French, about 400 pages should be read. Or German: Gram.; translation of easy prose; about 200 duodecimo pages should be read.	.....do.....	Same as above.....	.....do.....	
French: Fasnacht's Progressive Course, I, II; Reader, I. Or German: Gram. (Ahn); Progressive Reader.	U. S. hist.; ancient hist.; Greece; Rome.	Arith.; school algebra (Wentworth).	Geog.....	252
French: Gram.; Rambaud's Histoire de la Civilisation Française. Or German: Gram.; Hauff's or Grimm's Märchen.	Greece; Rome.....	Arith.; algebra through quadratics; plane geometry.	.....	
French and German as above.	Rome.....	Same as above. Also: Algebra from quadratics; volumetric and spherical geometry.	Chemistry, non-metals, and laboratory course of 40 experiments; or physics, Hall and Bergen and 40 experiments; or some other branch of science approved by the dean.	253
Same as above.....	U. S. hist. (Johnston).	Algebra to series; plane, solid, and spherical geometry; plane trigonometry, right angled and oblique angled plane triangles.	Physics (Peck's Ganot); chemistry, non-metals and their important compounds with each other; free-hand drawing.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
254	Manhattan College, New York, N. Y.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Same as for B. S. course.
		C. E. and B. S. in Arch.	do	do
255	New York University, New York, N. Y.	A. B. and B. S.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 6 orations; comp. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		Ph. B. and B. S.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		do	do	
		Civ. Eng.	do	
256	St. John's College, New York, N. Y.	A. B.	Gram.; comp.	Latin: Gram.; comp.; Historiæ Sacræ; Cicero's letters; Nepos; Phædrus; Cicero, De Senectute; Cæsar; Ovid. Greek: Gram.; comp.; Æsop's Fables; Lucian; Cebes, Tablet; Anabasis.
257	Niagara University, Niagara University, N. Y.	A. B.	Gram.; comp.; rhetoric.	Latin: Gram.; comp.; Cæsar; Sallust; Cicero's Orations; Virgil; Livy. Greek: Gram; comp.; Memorabilia; Iliad.
258	University of Rochester, Rochester, N. Y.	A. B.	Gram.; comp.; Midsummer Night's Dream; Woodstock; Tales of a Traveller; Webster's First Bunker Hill Oration; Milton's L'Allegro and Il Penseroso; Macaulay's Essay on Milton.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Lessons (White); Anabasis, 3 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		B. S.	do	
259	Union College, Schenectady, N. Y.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks., or Arrowsmith and Whicher's First Latin Readings; Virgil, 6 bks.; Cicero, 6 orations; Sallust, Catiline or Jugurtha. Greek: Gram.; Goodwin's Reader, 100 pages; Anabasis, 4 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course. Greek: Same as for A. B. course (optional with French or German).
		B. S. and Engineering.	do	Latin: Same as for A. B. course (optional with French or German).

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Greece to death of Alexander; Rome to death of Marcus Aurelius; U. S. hist.	Arith.; algebra through quadratics; plane geometry.	Geog.; el. physics...	
French or German: 3 yrs. work each.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	254
French and German as above.	.....do.....	.....do.....	.....do.....	
Same as for B. S. course.	.....do.....	Same as for A. B. course. Also advanced mathematics, including a complete course of algebra.	.....do.....	
.....	Rome to battle of Actium, 31 B. C.; Greece; U. S. hist.	Arith.; algebra through quadratics (Wentworth); plane geometry.	Geog.....	
French or German: Gram.; sight translation of simple prose.	U. S. hist.; Greece or Rome as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	255
French and German as above.	U. S. hist.....	.....do.....	.....do.....	
Same as above.....	Same as above.....	.....do.....	.....do.....	
.....	U. S. hist.; Greece; Rome.	Arith.; algebra.....	Geog.....	256
French: Edgren. German: Ahn.	U. S. hist. (Hassard); hist. (Vuibert).	Arith.; algebra (Loomis); geometry (Loomis).	.....	257
.....	Gen. hist. (Myers); U. S. hist. to close of Civil War (Johnston).	Arith.; algebra through quadratics; plane and solid geometry.	.....	
French: Gram.; 200 pages of reading. Or German: Gram.; 100 pages of easy prose.	Same as for A. B. course.	Same as for A. B. course.	.....	258
French and German as for Ph. B. course.	.....do.....	Same as for A. B. course. Also plane trigonometry through plane triangles.	Physics (Gage); physiology or botany or zoology; chemistry or geology or astron.	
.....	U. S. hist.; Greece; Rome.	Arith.; algebra through quadratics; plane geometry.	Geog.; physiology...	
French: Gram.; comp.; 200 pages of prose and poetry. Or German: Gram.; comp.; 100 pages of prose and poetry. (Optional with Greek.)	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	259
French or German as above (optional with Latin).	.....do.....	.....do.....	.....do.....	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
260	Syracuse University, Syracuse, N. Y.	A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. and Eclogues; comp. Greek: Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks., or Odyssey, 4 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	Same as for Ph. B. course (optional with 1 year of French).
		B. Arch.	Gram.; rhetoric	
		B. L.	Same as for A. B. course.	Latin or Greek as for A. B. course (optional with either French or German).
261	University of North Carolina, Chapel Hill, N. C.	A. B.	Gram.; rhetoric: literature; comp.; Merchant of Venice; Milton's Comus; Alhambra; Macaulay's Essay on Milton; Ivanhoe; Lady of the Lake; Evangeline; Webster's First Bunker Hill Oration; De Foe's History of the Plague in London.	Latin: Cæsar, 2 bks.; Cicero, 4 orations; Virgil, 6 bks.; gram. Greek: White's Beginner's Book; comp.; Anabasis, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	
262	Biddle University, Charlotte, N. C.	A. B.	Language (Tarbell); comp. and rhetoric (Genung); gram.	Latin: Gram.; Cæsar. Greek: Gram.; White's Beginner's Book.
		B. S.	Same as for A. B. course.	First Latin Book (Tuell and Fowler) or Greek as for A. B. course.
263	Davidson College, Davidson, N. C.	A. B.	Gram.	Latin: Gram. and reader; Cæsar; Cicero, orations against Catiline. Greek: Gram. and reader; White's Beginner's Book.
		B. S.	Same as for A. B. course.	
264	Trinity College, Durham, N. C.	A. B.	Gram.: rhetoric: Evangeline; Sketch Book; Lady of the Lake; Ivanhoe; Merchant of Venice.	Latin: Cæsar, 4 bks.; Virgil, 2 bks.; comp. Greek: Anabasis, 2 bks.
265	Elon College, Elon College, N. C.	A. B. and Ph. B.	Gram.; Butler's School English; Manly's Southern Literature.	Latin: Lessons; Cæsar, 2 bks. Greek: Lessons.
266	Guilford College, Guilford College, N. C.	A. B. and B. S.	Gram	Latin: Tuell and Fowler's First Book; Cæsar, 4 bks.
267	Lenoir College, Hickory, N. C.	A. B.	Gram.; comp.	Latin: More important forms, more elementary rules of syntax. Greek: Facility in composition and translation.
268	North Carolina College, Mount Pleasant, N. C.		Gram	Latin: Bingham's Exercises and Reader; Cæsar; Cicero, orations against Catiline. Greek: Lessons; gram.: Anabasis, 1 bk.
269	Catawba College, Newton, N. C.	A. B.	Gram.; Tarbell's Lessons; comp.; Lockwood's Lessons.	Latin: Gram.; Cæsar; Cicero. Greek: White's Beginner's Book; gram.: Anabasis, 1 bk.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	U. S. hist.; Rome to end of third Punic war; Greece to capture of Corinth, 146 B. C.	Arith.; algebra through quadratics; plane geometry (Wentworth, 5 bks.).	Phys. geog. (Geikie); physics (Steele); physiology (Martin) or botany.	
German: Gram.; 200 pages of reading.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
Same as for Ph. B. course. Also 1 year of French (optional with Latin); a second year of French or German (optional with 4 bks. of Cæsar).	....do	Same as for A. B. course. Also algebra to series; solid geometry; plane trigonometry.	....do	260
	U. S. hist.; Greece and Rome (Myers' Ancient Hist.).	Arith.; algebra, complete; plane and solid geometry.	Geog.; physics; drawing.	
French: Gram.; Telemaque, 10 bks. German: Gram.; Andersen's Märchen; Whitney's Reader.	Same as for B. Arch. course.	Same as for A. B. course.	Physiology; physics.	
	Greece (Oman); Rome (Allen); U. S. hist. (Barnes).	Algebra to quadratics; arith.		261
	Same as for A. B. course.	Same as for A. B. course.		
	....do	....do		
	U. S. hist. (Montgomery).	Arith.; algebra	Drawing	
	Same as for A. B. course.	Same as for A. B. course.	Drawing; physiology	262
		Arith.; algebra to quadratics.		263
		Same as for A. B. course.		
	American hist. (Johnston).	Algebra to quadratics		264
	U. S. hist	Arith.; algebra to quadratics.		265
	U. S. and gen. hist	Arith.; el. algebra	Physiology; phys. geog.	266
	U. S. hist	....do		267
	....do	Arith.; algebra through quadratics; plane geometry.		268
	U. S. hist. (Hansell); gen. hist. (Myers); civil government.	Arith.; algebra	Phys. geog. (Maury); physiology; nat. phil. (Avery); nat. science (Bart).	269
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
270	Livingstone College, Salisbury, N. C.	A. B.....	Gram.; comp. (Swinton); rhetoric; English literature (Shaw).	Latin: Gram.; Cæsar, 3 bks.; Virgil, 2 bks.; comp. Greek: White's Beginner's Greek; gram.
271	Wake Forest College, Wake Forest, N. C.	A. B.....	.....	Latin: Collar and Daniell's Beginner's Book; Cæsar, 2 bks. Greek: White's Beginner's Book.
272	Weaverville College, Weaverville, N. C.	A. B.....	Gram.; American literature.	Latin: Collar and Daniell's First Book. Greek: Harkness's First Book.
		B. S	Same as for A. B. course..	Latin: Same as for A. B. course.
273	Fargo College, Fargo, N. Dak.	A. B.....	.....	Latin: Comstock's Lessons; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; White's Lessons; Anabasis, 3 bks.; Iliad, 3 bks.
		B. S	Gram.; rhetoric; literature.	Latin: Comstock's Lessons; Cæsar, 4 bks.; Cicero, 6 orations; comp.
274	University of North Dakota, University, N. Dak.	A. B.....	Comp.; rhetoric; English literature; American literature.	Latin: Lessons; Cæsar; Cicero; Virgil; comp.
		.....do....	Comp.; rhetoric; literature; science of gram.	.....
275	Red River Valley University, Wahpeton, N. Dak.	A. B.....	Gram.; comp	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis; Herodotus.
		B. S	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. L	Gram.; comp.; rhetoric...	.....
276	Buchtel College, Akron, Ohio.	A. B.....	Gram.; comp.; analysis; el. rhetoric; Lamb's Tales from Shakespeare; Evangeline; Hawthorne's Wonder Book; Merchant of Venice; Dickens's Tale of Two Cities; De Foe's History of the Plague in London; Silas Marner; Webster's First Bunker Hill Oration; Carlyle's Essay on Burns.	Latin: Gram.; Cæsar, 3 bks.; Cicero, 6 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 3 books; prose comp.
		Ph. B.....	Same as for A. B. course..	Latin: Same as for A. B. course.
		B. S	.....do	Latin: Gram.; Cæsar, 3 bks.; Cicero, 6 orations.
277	Mount Union College, Alliance, Ohio.	A. B.....	Gram.; analysis; rhetoric; study of authors.	Latin: Gram.; Lessons; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; White's Lessons; Anabasis, 4 bks.; Iliad, 4 bks.; comp.
		Ph. B.....	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S	.....do	.....
278	Ashland University, Ashland, Ohio.	A. B.....	Gram.; rhetoric; English and American literature.	Latin: Gram.; Cæsar. Greek: 1 yrs. work.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Gen. hist. (Myers); civil government (Young).	Algebra.....	Physiology; zoology (Steele); botany (Gray); chemistry (Cooley); geology (Steele); physics (Cooley).	270
.....	.....	Arith.; algebra to quadratics.	Elements of botany or physiology, or phys. geog. or zoology.	271
.....	U. S. hist.....	Arith.; algebra.....	Physiology	272
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Gen. hist. (Myers).....	Algebra through quadratics; plane and solid geometry.	Phys. geog.; el. physics.	273
.....	U. S. hist.; gen. hist..	Arith.; algebra through quadratics; plane and solid geometry.	Same as for A. B. course.	
.....	Civics (Thorpe); gen. hist. (Myers).	Algebra; geometry ..	Biology (Bergen); physics (Gage's Principles); drawing.	274
.....	Same as above. Also philosophy of U. S. hist.	Same as above. Also science of arithmetic.	Same as above. Also el. astronomy; commercial law; polit. econ.	
.....	U. S. hist.; ancient hist.	Arith.; algebra; plane geometry.	Physiology	
.....	U. S. and gen. hist.; ancient hist.; civics.	Same as for A. B. course.	Physiology; botany; physics; zoology.	275
German: 2 yrs. work.	U. S. and gen. hist.; English hist.; civics.	.....do.....	Same as for A. B. course.	
.....	Greek and Roman hist.; U. S. hist.; civil government.	Arith.; algebra through quadratics; plane and solid geometry.	Drawing.....	276
.....	U. S. and gen. hist.; civil government.	Same as for A. B. course.	Physiology; phys. geog.; drawing.	
.....	Same as for Ph. B. course.	.....do.....	Physiology; phys. geog.; drawing; nat. phil.	
.....	U. S. and gen. hist.; Greece (Myers); Rome.	Arith.; algebra; plane and solid geometry.	Phys. geog.; nat. phil. (Avery); chemistry (Remsen); descrip. geog.	277
German: 1 yrs. work; German or French: 1 yrs. work.	U. S. and gen. hist.; Rome; Greece or England.	Same as for A. B. course.	Same as for A. B. course.	
German: 3 yrs. work; French: 2 yrs. work.	U. S. and gen. hist.; Rome; England.	.....do.....	.....do.....	
.....	Civil government; Men of Rome.	Algebra: plane, solid, and spherical geometry.	Physiology; phys. geog.; physics; geology; botany	278

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
279	Ohio University, Athens, Ohio.	A. B.	Gram.; comp.; rhetoric; literature.	Latin: Gram.; Viri Romæ; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.; reader; Anabasis, 3 bks.; Iliad, 3 bks.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
280	Baldwin University, Berea, Ohio.	A. B.	Rhetoric; English literature (Brooke's Primer); American literature (Watkins's Primer).	Latin: Collar and Daniell's Beginner's Book; Viri Romæ; Cæsar; Cicero; Ovid's Metamorphoses; Virgil; prose comp. Greek: White's Beginner's Book; Anabasis; Iliad; prose comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	....do	Latin or Greek (optional with German).
		B. L.	....do	Same as for B. S. course.
281	Cedarville College, Cedarville, Ohio.	A. B.	Higher Lessons (Reed and Kellogg); literature (Shaw).	Latin: Gram.; Cæsar; Virgil; comp. Greek: White's Beginner's Book; Anabasis; comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
282	St. Joseph's College, Cincinnati, Ohio.	A. B.	Gram. (Bullion); comp.	Latin: Gram. (Bullion); Historia Sacra; Viri Romæ; Cæsar, 2 bks. Greek: Gram. (Goodwin); Greek Ollendorf (Kendrick); reader (Jacobs).
283	St. Xavier College, Cincinnati, Ohio.	A. B.	Gram. (Goold Brown); Coppons' Practical Introduction; comp.; selections.	Latin: Gram. (Yenni); Historia Sacra; Cicero; Cæsar. Greek: Gram. (Yenni); Æsop; Hierocles; Lucian.
284	University of Cincinnati, Cincinnati, Ohio.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Sallust's Catiline or Cicero's De Amicitia; prose comp. Greek: Anabasis, 4 bks.; Iliad, 3 bks.; gram.; prose comp.
		B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	....do	.....
285	Calvin College, Cleveland, Ohio.	A. B.	Higher Lessons (Reed and Kellogg).	.....
286	St. Ignatius College, Cleveland, Ohio.	A. B.	Gram.; rhetoric (Coppens); comp.	Latin: Gram. and exercises (Schultz); Nepos; Cæsar. Greek: Gram. and exercises.

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	U. S. and gen. hist.; hist. of England.	Arith.; algebra; plane geometry.	Phys. geog.	279
German: 1 yrs. work.	Same as for A. B. course; also civil government.	Same as for A. B. course.	Phys. geog.; zoology; physics.	
	Ancient, mediæval, and modern hist. (Myers).	Algebra: plane and solid geometry.	El. physics (Carhart and Chute); botany (Gray); physiology; phys. geog.	
German: Gram.; comp.; a modern and a classical drama.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	280
French: Gram.; comp.; modern story; classical drama; hist. of French literature. German (optional with Latin or Greek).	do	do	Same as for A. B. course. Also drawing.	
Same as for B. S. course.	do	Algebra	El. physics; botany.	
	American hist. (Montgomery); civics (Macy); gen. hist. (Myers).	Arith.; algebra (Bowser).	Phys. geog.; botany (Gray).	281
German: Collar's Eysenbach.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Ancient hist. (Fredet).	Arith.; algebra to series.		282
	U. S. hist. (Sadlier); modern hist. (Fredet).	Arith.; algebra through radicals.	Phys. geog.	283
	Roman hist. (Myers); Myers' Eastern Nations and Greece.	Algebra to arithmetical progression; plane geometry.		
French or German: Gram.; comp.; sight reading.	Gen. hist. (Myers)	Same as for A. B. course.		284
Same as for B. L. course.		Same as for A. B. course. Also: Solid and spherical geometry; plane trigonometry.	El. botany; el. inorganic chemistry; el. physics; el. zoology.	
German: Gram.; Schiller's Glocke.	Ancient and mediæval hist. (Barnes); U. S. hist. (Eggleston).	Algebra to binomial theorem; arith.	Physics (Shaw)	285
	U. S. hist.; ancient hist.	Arith.; algebra through quadratics; geometry.		286

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
287	Western Reserve University, Cleveland, Ohio.	A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram.; Cæsar, 3 bks.; Cicero, 6 orations; Virgil, 6 bks. and Bucolics; Ovid; prose comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		Ph. B.	do	do
288	Capital University, Columbus, Ohio.	A. B.	Gram. (Swinton's); comp.; analysis.	Latin: Harkness First Year; Viri Romæ; Cæsar, 2 bks. Greek: Gram. and exercises (Lattmann).
		A. B.	Gram.; comp.; rhetoric; Paradise Lost, I and II; Pope's Iliad, I and XXII; Vicar of Wakefield; Southey's Life of Nelson; Vision of Sir Launfal; House of Seven Gables.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; comp.; Anabasis, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		Ph. B and B. S.	do	Latin and French, or Latin and German, or French and German, as in Ph. B. course above.
289	Ohio State University, Columbus, Ohio.	Ph. B.	Same as for A. B. course. Optional: English literature (Pancoast's Introduction).	Same as for Ph. B. and B. S. courses, but chemistry, physiology, and English literature, or English history may be offered in place of one foreign language.
		B. S. in Agr., or in hort. and forestry.	Gram.; comp.; rhetoric.	
		Engineering courses.	Same as for A. B. course. See also under science.	

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Hist. of Rome (Smith); hist. of Greece (Oman).	Arith.; algebra to binomial theorem; plane and solid geometry.	.....	
German: Gram.; comp.; Der Fluch der Schonheit (Riehl); Aus dem Staat Friedrichs des Grossen (Freytag); Die Harzreise (Heine); Goethe's Dichtung und Wahrheit, 3 bks.; Minna von Barnhelm; Wilhelm Tell; Das Lied von der Glocke (Schiller); 30 pages of lyrics and ballads.	Same as for A. B. course.	Same as for A. B. course.	.....	287
.....	Rome; Greece; England (Ransom).	.....do.....	Chemistry (Eliot and Storer); physics.	
German: Masius and Wetzel.	.....	Arith.; algebra (Wells' Higher).	Phys. geog.....	288
.....	U. S. hist.; gen. hist. (Myers); civil government.	Arith.; algebra; plane and solid geometry.	Phys. geog.; botany (Gray); el. physics (Gage).	
French: Gram.; comp.; sight reading. Or German: Gram.; reader; Lichtenstein; Minna von Barnhelm; Sessenheim; Dichtung und Wahrheit.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
See classical languages.	.....do.....	.....do.....	.....do.....	
.....do.....	Same as for A. B. course. Also: English hist. (optional).	.....do.....	Same as for A. B. course. Optional: Chemistry (Remsen) and physiology (Martin).	289
.....	U. S. hist.; civil government (Fiske) or gen. hist. (Myers).	Algebra (Venable's Easy); plane geometry (Wentworth); arith.	Same as for A. B. course.	
.....	U. S. hist. See also under science.	Arith.; algebra; plane and solid geometry.	Physics (Gage); 2 of the following: Botany, phys. geog., physiology, astronomy, civil govt., gen. hist., Pancoast's Introduction to English literature.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
290	Defiance College, Defiance, Ohio.	A. B.	Gram.; comp.; rhetoric; English and American literature.	Latin: Gram.; Cæsar; Cicero; Virgil, 6 bks.; comp. Greek: Gram.; reader; Anabasis.
		Ph. B. and B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Same as for Ph. B. and B. S. courses.
291	Ohio Wesleyan University, Delaware, Ohio.	A. B.	Gram.; rhetoric (Clark's Briefer Practical); comp.; English and American literature (Shaw).	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. of Æneid, Eclogues, and 3 bks. of Georgics. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 4 orations.
292	Findlay College, Findlay, Ohio.	A. B.	Gram.; comp.; rhetoric.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; White's Beginner's Book; Anabasis, 4 bks.; comp.; selections.
		Ph. B. and B. S.	Same as for A. B. course, with an addition of 2 yrs. work in English.	Latin: Same as for A. B. course.
293	Kenyon College, Gambier, Ohio.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 4 bks. Greek: Gram.; comp.; Anabasis, 4 bks., or Iliad, 1 bk. and Anabasis, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	
294	Denison University, Granville, Ohio.	A. B.	Gram.; analysis; comp.; rhetoric.	Latin: Gram.; Cæsar, Cicero, 7 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis; prose comp.
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		B. S.	do	Latin: Gram.; Cæsar; Cicero, 4 orations; comp. Also: Virgil, 6 bks.; Cicero, 3 orations. (Optional with Greek or French.) Greek: Gram. and Anabasis (optional with Latin or French).

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
German: Gram.; reader; selections.	U. S. hist.; Rome; Greece; English hist.	Algebra; geometry	Phys. geog.; physiology; physics; botany.	
Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: Biology.	290
German or French	do	do	Same as for Ph. B. and B. S. courses.	
	U. S. hist. (Eggleston); Greece and Eastern Nations (Myers); Rome (Allen); mediæval and modern hist. (Myers).	Algebra; arith.; plane and solid geometry.	Descrip. and phys. geog.; physics (Appleton); botany (Gray); physiology (Walker).	
German: Gram.; reader (Brandt); Jungfrau von Orleans; Goethe's Egmont, Hermann and Dorothea.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	291
German: Gram. and reader.	do	do	Descrip. and phys. geog.; physiology.	
	U. S. and gen. hist.; Roman hist.	Arith.; algebra; plane geometry.	Descrip. and phys. geog.; botany; zoology; el. physics.	292
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist.; Greek hist. (Fyffe); Roman hist. (Allen).	Arith.; algebra through quadratics; plane geometry.	Polit. and phys. geog.	
German: Gram.; 100 pages of prose.; 100 pages of verse; Storm's Immensee; Der Neffe als Onkel.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	293
Same as for Ph. B. course.	U. S. hist.; gen. hist. (Myers); English hist.; civics.	do	Polit. and phys. geog.; physics (Gage); chemistry; botany (Gray); physiology (Martin).	
	U. S. hist.; English hist.; ancient hist.	Arith.; algebra; plane, solid, and spherical geometry.	Phys. geog.; physiology; el. physics.	
	Same as for A. B. course. Also: Mediæval and modern hist.	Same as for A. B. course.	Same as for A. B. course. Also: Botany; chemistry; physiology; drawing.	294
French: Gram., reader, comp., literature, and history. (Optional with Latin or Greek.)	Same as for Ph. B. course.	do	Same as for Ph. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
295	Hiram College, Hiram, Ohio.	A. B. and B. L.	Gram.; comp.; rhetoric; literature.	Latin: Lessons; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; comp.; gram. Greek: Gram.; Lessons; Anabasis, 3 bks.; Iliad, 4 bks.
		Ph. B., B. S., and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
296	Lima College, Lima, Ohio.	A. B.	Gram.; analysis; rhetoric; English lessons (Lockwood).	Latin: Gram.; Lessons; Cæsar; Ovid; Virgil; comp. Greek: Lessons; gram.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
297	Marietta College, Marietta, Ohio.	A. B.	Gram.; el. rhetoric; el. literature; comp.; Julius Cæsar; Twelfth Night; Tales of a Traveler; Macaulay's Essay on Addison; Scott's Abbot; Arnold's Sohrab and Rustum; Defoe's History of the Plague in London; Silas Marner; Courtship of Miles Standish.	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 7 orations; Sallust's Catiline; Virgil, 6 bks. Greek: Gram.; prose comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do.	
298	Franklin College, New Athens, Ohio.	A. B., B. S., and Ph. B.	Gram.; comp.; rhetoric; fables; biography.	Latin: Gram. and lessons.
299	Muskingum College, New Concord, Ohio.	A. B.	Gram.; analysis; rhetoric.	Latin: Lessons; Cæsar; Cicero's Orations. Greek: Lessons.
		B. S.	Gram.	Latin: Lessons; Cæsar, Book II.
300	Oberlin College, Oberlin, Ohio.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks.; comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 2 bks.; comp.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; ancient and modern hist.; civil government.	Arith.; algebra; plane geometry.	Nat. philosophy.....	
German: Gram.; Maerchen; Minna von Barnhelm; Wilhelm Tell; Faust; Die Schonsten Deutschen Lieder.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	295
.....	U. S. hist.; gen. hist. (Myers); civil government.	Arith.; algebra; plane and solid geometry.	Physiology; phys. geog.; botany.	
German: Worman's Reader and gram.; Undine.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	296
.....	U. S. hist. (Montgomery); gen. hist. (Myers); civil government.	Arith.; algebra, through quadratics; plane geometry.	Phys. geog.; physiology (Martin).	
German: Gram.; reader; comp.; Wilhelm Tell; Maria Stuart.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: El. physics (Gage).	297
Same as for Ph. B. course.	.....do.....	Same as for A. B. course. Also: Solid geometry; plane trigonometry.	Same as for Ph. B. course. Also: El. chemistry (Remsen's Inorganic); botany (Gray); zoology (Colton).	
.....	U. S. and gen. hist.; civil government.	Arith.; algebra.....	Nat. philosophy; physiology; phys. geog.	298
.....	U. S. hist.; Greek and Roman hist.; hist. of England.	.....do.....	Phys. geog.; physiology.	
.....	U. S. hist.....	Arith.; el. algebra....	Phys. geog.....	299
French or German: El. gram.; sight translation of prose.	U. S. and gen. hist.; civil government.	Arith.; algebra, including logarithms; plane and solid geometry.	El. physics. Also 2 of the following: Phys. geog.; physiology; el. botany; el. biology; el. chemistry; el. astronomy.	
French and German as for A. B. course. Also: French: Adv. gram.; comp.; Le Siège de Berlin; La dernière classe; Colomba; Mlle. de la Seiglière; Jeanne d'Arc; 1 play of Corneille, Racine, and Moliere. German: Adv. gram.; comp.; Fluchder Schönheit; Aus dem Staat Friedrichs des Grossen; Die Harzreise; Dichtung und Wahrheit; Minna von Barnhelm; Wilhelm Tell; Lied von der Glocke.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	300
Same as for Ph. B. course.	.....do.....	.....do.....	Same as for A. B. course. Also: El. botany (Gray); drawing.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
301	Miami University, Oxford, Ohio.	A. B.	Gram.; comp.; rhetoric; English and American literature (Raum).	Latin: Viri Romæ; Cæsar; Cicero; Virgil; prose comp. Greek: White's Beginner's Book; Anabasis; Hellenica. (Optional with German.)
		B. S.	Same as for A. B. course.	Latin: Viri Romæ; Cæsar; Cicero on Manilian Law.
302	Richmond College, Richmond, Ohio.	A. B.	Gram. (Swinton); rhetoric; Paradise Lost.	Latin: Gram.; Cæsar; Sallust; Cicero. Greek: Gram.; reader; Xenophon.
303	Rio Grande College, Rio Grande, Ohio.	A. B.	Gram.; comp.; rhetoric.	Latin: Viri Romæ; Cicero; Virgil's Æneid. Greek: Gram.; Anabasis; Iliad; comp.
		B. S.	do.	Latin: Viri Romæ; Cicero.
304	Scio College, Scio, Ohio.	A. B.	Gram.; comp.; rhetoric; literature.	Latin: Gram.; Cæsar, 4 bks.; Sallust's Catiline; Cicero, 6 orations; Virgil, 3 bks.; comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do.	Latin: Gram.; Cæsar, 4 bks.; Sallust's Catiline; Cicero, 3 orations; comp. Greek, French, or German.
305	Wittenberg College, Springfield, Ohio.	.....	Gram.; analysis; comp.; rhetoric.	Latin: Gram.; reader; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.; White's Lessons; Anabasis, 4 bks.; Iliad, 2 bks.; comp.
306	Heidelberg University, Tiffin, Ohio.	A. B.	Gram.; comp.; Merchant of Venice; Evangeline; Webster's First Bunker Hill Oration; Silas Marner.	Latin: Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 4 bks.; prose comp. Greek: Gram.; White's Lessons; Anabasis, 4 bks.; Iliad, 2 bks.; comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do.	Latin: Cæsar, 4 bks.; Cicero, 3 orations.
		B. L.	do.	Same as for B. S. course (optional with music).
307	Otterbein University, Westerville, Ohio.	A. B.	Gram.; analysis; rhetoric; American literature; comp.; Midsummer Night's Dream; Milton's L'Allegro, Il Penseroso, and Lycidas; Macaulay's Essay on Milton; Scott's Marmion; Evangeline; Silas Marner.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
		Ph. B. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
308	Wilberforce University, Wilberforce, Ohio.	A. B.	Gram.; comp.; rhetoric.	Latin: Collar and Daniell's Beginner's Book; Arrowsmith and Whicher's First Latin Readings; Bender's Roman Literature; Virgil's Æneid. Greek: Frost's Primer; Anabasis; Hellenica.
		B. S.	Same as for A. B. course.	Latin: Collar and Daniell's Beginner's Book.

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Modern languages.	History.	Mathematics.	Science.	
German: Gram.; ability to read fluently. (Optional with Greek.)	Greek and Roman hist.; U. S. hist.; English hist.	Arith.; algebra, through logarithms; plane geometry.		301
German: Gram.; ability to read fluently.	U. S. and Roman hist.; English hist.	Same as for A. B. course.	Physics (Gage); chemistry (Remsen's Briefer); physiology.	
	U. S. hist.; hist. of England.	Arith.; algebra	Phys. geog.; physiology.	302
	U. S. hist.; civil government; Roman hist.	Arith.; algebra; plane geometry.	El. zoology; phys. geog.; physiology; nat. phil. (Gage).	303
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Gen. hist.; civil government; English hist.	Arith.; algebra; plane and solid geometry; conic sections.	Phys. geog.; physiology; el. physics; el. zoology.	
German: Gram.; reader. French: Muzzarelli's course; Trip to Paris.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	304
French, German, or Greek.	do	do	do	
French and German: Gram.; comp.; sight translation.	U. S. and gen hist	Arith.; algebra; plane and solid geometry.	Polit. and phys. geog.; el. physics (Gage); el. botany; physiology.	305
	U. S. hist.; civil government.	Arith.; algebra, through quadratics; plane geometry.		
	Same as for A. B. course. Also: Gen. hist.	Same as for A. B. course.		306
	Same as for A. B. course.	do	Physiology (Lincoln).	
	do	do		
	U. S. hist.; English hist.; Bible hist.; civil government.	Arith.; el. algebra; plane and solid geometry.	Descrip. and phys. geog.; astronomy; physiology; nat. philosophy.	307
German: Gram.; reader; comp.; Tell; Maria Stuart.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Greek and Roman hist. (Pennell); gen. hist. (Myers); civil government.	Arith.; algebra; geometry.	Botany (Gray); physics (Gage).	308
	Roman hist.; gen. hist.	Arith.; algebra	Botany (Gray)	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
309	Wilmington College, Wilmington, Ohio.	A. B.	Gram.: comp.: American literature.	Latin: Gram.; Harper's Inductive Method; Cæsar; Cicero: prose comp.
		B. S	Gram: comp.; rhetoric; American literature.	Latin: Gram.; Harper's Inductive Method.
310	University of Wooster, Wooster, Ohio.	A. B.	Gram.; analysis; rhetoric.; comp.	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 4 bks. Greek: Gram.; Lessons; Anabasis, 3 bks.; Herodotus, 30 pp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Latin: Gram.; prose comp.; Cæsar, 4 bks.
311	Antioch College, Yellow Springs, Ohio.	A. B. and Ph. B.	Gram.; higher English	Latin: Lessons; Cæsar; Cicero; Virgil; comp.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course or Virgil optional with German.
312	University of Oklahoma, Norman, Okla.	A. B., B. S., and Ph. B.	Gram.; rhetoric; Miles Standish; Sir Roger de Coverley; Sketch Book; David Copperfield; Ivanhoe; Julius Cæsar; Silas Marner.	Latin: Collar and Daniell's First Latin Book; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 4 bks.; prose comp.
		A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; Cæsar; Cicero, 6 orations; Virgil, 9 bks.; prose comp. Greek: Gram.; Anabasis, 7 bks.; Odyssey, Bk. VI; comp. (Optional with German.)
313	University of Oregon, Eugene, Oreg.	B. S	Same as for A. B. course.	Latin: Gram.; Cæsar; Cicero, 2 orations; prose comp. (Optional with German.)
		B. L.	do	
		Engineering.	do	
314	Pacific University, Forest Grove, Oreg.	A. B.	Comp.: Evangeline; Miles Standish; Snow Bound; Vision of Sir Launfal; Thanatopsis; Sketch Book; Lady of the Lake; Emerson's Essays on Self-Reliance; American Scholar, and Compensation; Merchant of Venice.	Latin: Gram.; Cæsar, 3 bks.; Cicero, 4 orations; Virgil, 4 bks.; comp.; sight reading. Greek: Gram.; Anabasis, 3 bks.; comp.; sight reading.
		B. S. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
315	McMinnville College, McMinnville, Oreg.	B. S. and B. L.	Gram.: comp.	Latin: Reader; Cæsar (1 term's work).
316	Pacific College, Newberg, Oreg.	A. B. and B. S.	do	Latin: Harper's Inductive Method (1 yr.).
317	Philomath College, Philomath, Oreg.	A. B. and B. S.	Gram	Latin lessons.

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languges.	History.	Mathematics.	Science.	
	U. S. hist. (Montgomery); English hist. (Montgomery).	Algebra	Physiology; phys. geog. (Guyot); nat. phil. (Avery).	
	Same as for A. B. course. Also: Protestant Revolution (Seebohm).	Same as for A. B. course.	Same as for A. B. course. Also: Microscopy and philosophy.	309
	U. S. hist. (Johnston); gen. hist. (Myers); civil government.	Arith.; algebra; plane geometry.	Physiology (Martin); botany (Gray).	
German: Gram.; reader; Bronson's Collegiate German; Freytag's Doktor Luther; Hermann and Dorothea; Tell. Same as for Ph. B. course. Also, French: Whitney's Practical French; Super's reader.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	310
	do	do	do	
	U. S. hist.; gen. hist.	Arith.; algebra; geometry.	Physiology; zoology; botany; geology; physics; astronomy.	311
German (optional with Virgil).	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist. (Barnes); civil government; gen. hist. (Myers).	Algebra (Milne's High School); plane and solid geometry.	Physiology (Martin); physics (Carhart and Chute); botany (Gray).	312
German: 2 yrs. work (optional with Greek).	Ancient hist. (Myers); Rome (Creighton); Greece (Fyffe).	Algebra (Taylor); plane and solid geometry (Bowser).	Physiology (Martin); botany or phys. geog.; gen. chemistry (Remsen's Briefer).	
German: 2 yrs. work (optional with Latin). French: 2 yrs. work.	Ancient hist. (Myers); Rome (Creighton).	Same as for A. B. course.	Same as for A. B. course.	313
German: 2 yrs. work. French: 2 yrs. work.	Ancient hist. (Myers).	do	do	
Same as for B. L. course.	Same as for B. L. course.	do	Physiology; botany; chemistry.	
	U. S. hist.; Greece; Rome.	Arith.; algebra through quadratics; plane and solid geometry.		314
French: Gram.; Télémaque; a play of Racine; Poetes de XIX me Siècle.	Same as for A. B. course.	Same as for A. B. course.	Astronomy; physics; physiology.	
	U. S. hist.; civil government; gen. hist.	Arith.; algebra (1 term's work).	Physiology	315
	U. S. hist.; civil government.	Arith.; algebra	Physiology; el. physics; zoology; phys. geog.	316
	U. S. hist.; gen. hist.; English hist.	do	Physiology; physics.	317

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
318	Willamette University, Salem, Oreg.	A. B.	Gram.; comp.; el. rhetoric.	Latin: Gram.; Virgil, 4 bks.; comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 3 bks.; comp.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
319	Portland University, University Park, Oreg.	A. B.	Gram.; comp.; el. rhetoric.	Latin: Gram.; Cæsar, 2 bks.; Cicero, 4 orations; Virgil, 4 bks. Greek: Gram.; Anabasis, 2 bks.; Iliad, 3 bks.
		Ph. B. and B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
320	Western University of Pennsylvania, Allegheny, Pa.	A. B.	Gram.; comp.; Life of Scott; Ivanhoe; Life of Longfellow; Evangeline.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks.
		do	do	Latin: Same as above.
		Ph. B.	do	
		Engineering.	do	
321	Muhlenberg College, Allentown, Pa.	A. B.	Orthography, etymology, and syntax.	Latin: Gram.; Cæsar, 3 bks.; Virgil, 3 bks. Greek: Gram.; reader or Anabasis, 3 bks.
322	Lebanon Valley College, Annville, Pa.	A. B.	Gram.; analysis; higher lessons; comp.; el. rhetoric.	Latin: Gram.; Lessons; Cæsar, 2 bks.; Cicero, 3 orations; Virgil, 3 bks.; comp. Greek: Gram.; Lessons; Anabasis, 2 bks.; comp.
		B. S.	Gram.; el. rhetoric.	Latin: Gram.; Lessons; Cæsar, 2 bks.
323	Geneva College, Beaver Falls, Pa.	A. B.	Gram.; comp.	Latin: Lessons; Cæsar; Cicero's Orations. Greek: Gram.; reader; Anabasis.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram.; Cæsar, 3 bks.; Cicero, 6 orations; Virgil, 6 bks. and Eclogues; comp. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		Ph. B.	do	Latin or Greek as for A. B. course.
		do	do	Latin: Cæsar, 3 bks., and Cicero, 4 orations, or an equivalent in Greek.
324	Dickinson College, Carlisle, Pa.	B. S.	do	Latin: Cæsar, 3 bks., or equivalent in Greek.
		do	do	
		do	do	

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.; gen. hist.: Eng. hist.	Algebra; plane geometry.	Phys. geog.; physiology; nat. phil.	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: Chemistry; el. astronomy.	318
.....	U. S. hist.; gen. hist.; civil government.	Arith.; algebra to series; plane geometry.	Descrip., polit., and phys. geog.; physiology; nat. phil.; descrip. astronomy.	319
French.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; Rome (Allen); Greece (Pennell).	Arith.; algebra to quadratics; plane geometry.	Phys. and polit. geog.	
.....	U. S. hist.; Rome.....	Same as above.....	Physiology; phys. and polit. geog.	320
.....	U. S. hist.....	....do.....	Same as above.....	
.....	Same as for Ph. B. course.	....do.....	Phys. and polit. geog.	
.....	U. S. hist.....	Arith.; el. algebra; geometry to circles.	Geog.....	321
.....	Gen. hist.; U. S. hist	Arith.; algebra; geometry, 3 bks.	Bookkeeping; phys. geog.	322
.....	Same as for A. B. course.	Arith	Descrip. geog.....	
.....	U. S. hist.; Roman hist.; introduction to Middle Ages.	Arith.; algebra.....	Phys. geog.; physiology; el. physics.	323
German: Gram.; reader; comp.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	Greece (Pennell); Rome (Smith's Smaller); U. S. (Johnston).	Arith.; algebra through progressions; plane geometry.	Geog.....	
French: Gram.; 350 pages of easy reading. Or German: Gram.; 300 pages of easy reading.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
2 yrs. work in French or German, or 1 yr. work in both.	.....do.....	.....do.....	.....do.....	
Same as above.....	.....do.....	Same as for A. B. course. Also: Algebra completed, solid geometry, and plane trigonometry (optional with science).	Geog. Also 1 of the following optional with advanced mathematics: Botany; phys. geog.; physiology; chemistry; physics.	324
French or German: 2 yrs. work.	.....do.....	Same as for A. B. course. Also: Algebra completed; solid geometry; plane trigonometry.	Geog.; 1 of the following: Botany; physiology; phys. geog.; chemistry; physics.	
Same as above.....	.....do.....	Same as for A. B. course.	Geog.; 2 of the following: Botany; physiology; phys. geog.; chemistry; physics.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
325	Pennsylvania Military College, Chester, Pa.	A. B.	Gram	Latin: Reader (Harkness); Cæsar. Greek: Lessons (Keep); Anabasis, 1 bk.
		B. S. and C. E.		Latin: Gram. and Reader (Harkness)—optional with French or German.
326	Ursinus College, Collegeville, Pa.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks; Virgil, 6 bks.; Cicero, 6 orations. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks. (Optional with German.)
327	Lafayette College, Easton, Pa.	A. B.	do	Latin: Gram.; comp.; Cæsar, 4 bks., or Nepos; Cicero, 7 orations; Virgil, 6 bks. and Bucolics. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks., or 3 Gospels.
		Ph. B.	do	Latin: Same as for A. B. course.
		B. S	do	
		Engineering.	Gram.; comp.; Franklin's Autobiography; Milton's Paradise Lost.	
328	Pennsylvania College, Gettysburg, Pa.	A. B.	Gram.; comp	Latin: Gram.; Cæsar, 3 bks.; Virgil, 3 bks.; Cicero, 3 orations. Greek: Gram.; comp.; Anabasis, 3 bks.
		B. S	Same as for A. B. course	Latin: Same as for A. B. course.
329	Grove City College, Grove City, Pa.	A. B.	Gram	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 3 bks. Greek: Gram.; Anabasis, 3 bks. (Optional with French and German.)
		Ph. B.	do	Latin: Gram.; Collar and Daniell's First Book; Cæsar, 1 bk. Greek: 1 term (optional).
		B. S	do	
330	Haverford College, Haverford, Pa.	(*b*)	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 6 orations. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
331	Franklin and Marshall College, Lancaster, Pa.	A. B.	Comp.; As You Like It; Defoe's History of the Plague in London; Tales of a Traveler; Silas Marner; Marmion.	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks.; Cicero, 4 orations; comp. Greek: Gram.; comp.; Reader (Jacobs); Anabasis, 3 bks.

a See page 458.
b Candidates for A. B. course must offer two languages, including Latin or Greek; candidates for B. S., any two languages; candidates for engineering course, one language.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist.....	Arith.; algebra (Davies's Bourdon to Chap. IV, Sec. VII).	Geog.....	
French: Ahn-Henn, 1st bk. to exercise 140. Or German: Ahn-Henn, 2d bk. to exercise 160. (Optional with Latin.)	.....do.....	Same as for A. B. course.	.....do.....	325
German: Gram.; comp.; Reader (Super); Andersen's Märchen; Auerbach's Brigitta; comp.: Erzählungen. (Optional with Greek.)	U. S. hist. (Montgomery); England (Gardiner); gen. hist. (Fisher).	Arith; algebra through quadratics, radicals, and theory of exponents; plane geometry.	Two of the following: El. physics (Gage); 40 experiments in physics; physiography; botany (Gray) and plant analysis.	326
.....	Rome to Augustus; Greece to Alexander; gen. hist.	Arith.; algebra through quadratics; plane geometry.	Ancient and modern geog.	
.....	Same as for A. B. course. Also: U. S. hist.	Same as for A. B. course.	Same as for A. B. course. Also: El. nat. philosophy.	327
.....	Same as for Ph. B. course.	.....do.....	Same as for Ph. B. course.	
.....	U. S. hist.....	.....do.....	Polit. or phys. geog.; el. physics (Gage).	
.....	U. S. hist. (Sheldon); gen. hist. (Myers's Mediæval).	Arith.; academic algebra (Wells through quadratics); geometry (Wentworth, 3 bks.).	Polit. geog.....	328
.....	Same as for A. B. course. Also: England; France.	Same as for A. B. course.	Phys. and polit. geog.; el. botany or el. physics.	
French: 4 terms..... German: 5 terms. (Optional with Latin and Greek.)	U. S. hist.....	Arith.: el. algebra (Robinson); geometry (Wentworth, 9 bks.).	Polit. geog.....	
.....	.....do.....	Arith.: algebra to involution.	.....do.....	329
.....	.....do.....	Arith.: el. algebra; geometry, 9 bks.	Polit. geog.; physiology.	
French: Gram.; comp.; Super's Reader, II, III, IV; Madame Thérèse; Fontaine's Histoirettes Modernes, I; La Mare au Diable. German: Gram.; Harris's Reader; Immensee; Geschichten aus der Tonne: Jungfrau von Orleans.	U. S. hist.; Greek and Roman hist. or English hist.	Algebra through quadratics and radicals; plane geometry. Solid geometry must be offered by students not presenting Greek.	El. physics and physiology required of students presenting neither Greek nor Latin.	330
.....	Ancient hist.....	Arith.; algebra through quadratics; geometry, 4 bks. (Wentworth).	Descrip. and phys. geog.; el. physics (Gage, 137 pages).	331

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
		A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Reader; Anabasis, 4 bks.; Iliad, 3 bks.
32	Bucknell University, Lewisburg, Pa.	Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		do	do	Latin: Gram.; comp.; Cæsar, 4 bks. Greek: Same as for A. B. course.
		B. S	Gram.; el. rhetoric; comp.	Latin: Gram.; comp.; Cæsar, 4 bks.
33	Lincoln University, Lincoln University, Pa.	A. B.	Gram.; comp	Latin: Gram Greek: Gram.
34	Allegheny College, Meadville, Pa.	A. B.	Gram.; el. rhetoric; el. English literature; comp.	Latin: Gram.; comp.; Cæsar, 4 bks.; Sallust, Catilina; Cicero, 7 orations (the Manilian law to count as 2); Virgil, 6 bks. Greek: Gram.; Beginner's Book (White); Anabasis; comp. (Optional with French or German.)
35	Central Pennsylvania College, New Berlin, Pa.	A. B.	Gram	Latin: Gram.; Cæsar, 3 bks.; Virgil, 2 bks. Greek: Gram.; Anabasis, 1 bk.
		B. S	Gram.; reading; spelling	
36	Westminster College, New Wilmington, Pa.	A. B.	Comp.; rhetoric; gram.; Sketch Book; Lady of the Lake; Julius Cæsar.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 3 orations; Virgil, 3 bks. Greek: Inductive Greek Primer (Harper and Castle).
		B. S	Same as for A. B. course.	Latin: Gram.; comp.; Cæsar; Cicero; Virgil.
		B. L	Gram.; comp	Latin: Gram.; Cæsar; comp.
37	La Salle College, Philadelphia, Pa.	A. B.	Gram.; comp.; rhetoric	Latin: Gram.; comp.; Cæsar, 4 bks.
38	University of Pennsylvania, Philadelphia, Pa.	A. B.	Requirements of Commission of New England Colleges. a	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; examination on historical and geographical points. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.; hist. and geog. points
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
		do	do	
		do	do	Latin: Gram.; comp.; Cæsar, 4 bks.; Virgil, 3 bks. (Optional with French or German.)

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	Rome; Greece; el. U. S. hist.	Arith.; algebra through quadratics; plane geometry.	Descrip., polit., and phys. geog.	
	Same as for A. B. course.	Same as for A. B. course.	Geog.; el. physics; physiology.	332
	do	do	Same as above	
	U. S. and gen. hist.; civics.	do	Same as above. Also: Botany.	
	U. S. hist	Arith.: algebra to fractions.	Descrip. geog	333
French or German: 2 yrs. work (optional with Greek).	U. S. (Johnston); Eastern Nations and Greece (Myers); Rome (Allen); civics (Macy).	Arith.; algebra through quadratics; plane and solid geometry.	Phys. geog.; physiology (Walker); nat. philosophy, with experiments (Gage).	334
		Arith.: el. algebra; geometry, 2 bks.	Phys. geog	335
	U. S. hist	Arith	Geog	
	Rome (Pennell); gen. hist.; U. S. hist.	Arith.; algebra through quadratics; geometry.	Phys. geog	
	Same as for A. B. course; also Greek hist.	Same as for A. B. course.	Geog.; physics; physiology; mechanical drawing.	336
	U. S. and gen. hist	Arith.; algebra	Phys. geog	
German: Ahn's First Book.	U. S. hist.: civil government; modern hist. (Fredet).	Arith.; el. algebra to quadratics; geometry.	Geog.; drawing	337
	Greece to death of Alexander; Rome to death of Augustus; U. S. hist. (Fiske).	Algebra, through progressions and quadratics; plane geometry.		
French: El. gram.; comp.; 30 pages of prose from 2 of the following: About; Sand; Dumas; P. Mérimée; Theuriet; Ohnet; de Maupassant; Erckmann-Chatrian. Or German: Lessons (Collar's Eysenbach); comp.; 200 pages of prose from not less than 3 of the following: Benedix; Hauff; Heyse; Riehl; Zschokke.	Same as for A. B. course.	Same as for A. B. course.		338
German and French as above.	do	do		
French and German as above. (1 is optional with Latin.)	do	Same as for A. B. course. Also solid geometry.		

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
		B. S. in Economics.	Same as for A. B. course	Latin or Greek as for A. B. course (optional with French or solid geometry, plane trigonometry, and physics).
338	University of Pennsylvania, Philadelphia, Pa.	B. S. in Biology.	do	Latin: Same as for A. B. course.
		B. S. in Arch.	do	
		B. S. in Engineering.	do	
		B. S. in Chemistry.	do	
339	Susquehanna University, Selinsgrove, Pa.	A. B	Gram.; Welsh's Essentials of English; comp.	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks.; Cicero, 3 orations. Greek: Gram.; Lessons; Anabasis, 3 bks.
		A. B	Gram.; rhetoric; comp.; books prescribed by Commission of New England Colleges are recommended.a	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
340	Lehigh University, South Bethlehem, Pa.	B. S	Same as for A. B. course	Latin: Same as for A. B. course.
		do	do	
		Engineering.	do	
341	Pennsylvania State College, State College, Pa.	A. B	Gram.; comp.; Macbeth; Burke's Speech on Conciliation with America; Flight of a Tartar Tribe; The Princess.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
		B. S	Same as for A. B. course	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 4 orations. (Optional.)
342	Swarthmore College, Swarthmore, Pa.	A. B	Requirements of Commission of New England Colleges. a	Latin: Gram.; comp.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 7 orations. Greek: Gram.; el. comp.; Anabasis, 4 bks.; Iliad, 3 bks. (Optional with French or German.)
		B. L., B. S., Engineering.	Same as for A. B. course	Latin: Same as for A. B. course (optional with French or German).
		do	do	Latin: Cæsar, 4 bks.; Virgil, 6 bks. (Optional with French or German).
343	Villanova College, Villanova, Pa.	A. B	Gram. (Hart); comp.; analysis.	Latin: Gram.; comp.; Cæsar; Ovid. Greek: Gram.; White's First Lessons.

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universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
German as for B. S. course. French as for B. S. course (optional with Latin or Greek or solid geometry, plane trigonometry, and physics).	Same as for A. B. course.	Same as for A. B. course. Also solid geometry and plane trigonometry (optional).	El. physics (optional).	
German: Same as for B. S. course.	do	Same as for A. B. course.		
French or German as for B. S. course.	do	Same as for A. B. course. Also solid geometry.		338
Same as for B. S. in Arch.	do	Same as for B. S. in Arch. Also plane trigonometry.	Physics (Gage's Elements).	
do	do	Same as for A. B. course. Also plane trigonometry.	Same as for B. S. in Engineering.	
	U. S., English, and gen. hist.	Arith.; el. algebra through quadratics; geometry, 4 bks.	Geog.; el. physics	339
	U. S. hist.; civil government; Rome (Myers); Greece (Myers).	Algrebra through quadratics and progressions; geometry (Chauvenet, 4 bks.).	Gen. and polit. geog.; phys. geog.	
	U. S. hist.; civics; Rome.	Algebra as for A. B. course; geometry (Chauvenet, 6 bks.).	Same as for A. B. course.	340
	U. S. hist.; civics	Same as above	Gen. and polit. geog.; el. physics (Avery).	
	Same as above	Same as for B. S. course. Also solid geometry.	Same as above	
	U. S. hist	Arith.; algebra through quadratics and progressions; plane geometry.	Phys. geog.; physiology; el. physics (Avery).	341
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
French: Gram.; Super's Reader; Magill's Modern French Series, I, II, III; Athalie; Bourgeois Gentilhomme; comp. Or German: Gram.; Grimm's Märchen; Eichendorff's Taugenichts; Buchheim's el. prose comp., I, II; Wilhelm Tell; Die Journalisten or Hermann und Dorothea; ballads; lyrics. (Optional with Greek.)	U. S. hist.; English or gen. hist.; Greece to death of Alexander (optional).	Arith.; el. algebra through quadratics and progressions; plane geometry.	Phys., descrip., and polit. geog.	342
French or German as for A. B. course (optional with Latin).	U. S. hist.; English or gen. hist.	Same as for A. B. course.	Same as for A. B. course.	
French and German: El. gram.; easy sight reading. (1 is optional with Latin.)	Same as above	do	do	
	U. S. hist.; civil government.	Arith	Geog.; physiology	343

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
344	Washington and Jefferson College, Washington, Pa.	A. B.	Gram.; comp.: Silas Marner; Autobiography of Benjamin Franklin; Sir Roger de Coverley; John Halifax, Gentleman; Marmion.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 4 orations; Virgil, 6 bks. Greek: Gram.; Anabasis, 4 bks.; comp.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course (optional).
345	Brown University, Providence, R. I.	A. B.	Requirements of Commission of New England Colleges.[a]	Latin: Cæsar, 4 bks. or 3 bks. and Sallust's Catiline; Ovid, 2,500 lines; Cicero, orations against Catiline and for Archias; Virgil, 6 bks. of the Æneid or 5 bks. of Æneid and Eclogues; gram.; comp. Greek: Gram.; comp.; Anabasis, or Anabasis, 4 bks. and Homer, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course or French in addition to German or German in addition to French.
		B. S.	do	Latin: Gram.; Cæsar, 5 bks. (Optional with German or French.)
		C. E. and M. E.	do	
346	College of Charleston, Charleston, S. C.	A. B.	Gram.; comp	Latin: Gram.; Gildersleeve's Primer; Cicero, 4 orations; Virgil, 2 bks. Greek: Gram.; Anabasis, 2 bks.; Iliad or Odyssey, 200 or 300 lines.
347	Presbyterian College of South Carolina, Clinton, S. C.	A. B.	do	Latin: Gram.; comp.; Cæsar; Eutropius; Nepos. Greek: Gram.; comp.; White's Lessons.
		B. S.	do	Latin: Same as for A. B. course.
348	Allen University, Columbia, S. C.	A. B.		Latin: Lessons; Cæsar; Cicero; Virgil's Æneid. Greek: Lessons; Anabasis; Iliad; prose comp.
349	South Carolina College, Columbia, S. C.	A. B.	Gram.; comp	Latin: Gram.; comp.; Cæsar, 3 bks.; Virgil, 3 bks. Greek: Gram.; comp.; Anabasis, 2 bks. (Optional.)
		B. S.	Same as for A. B. course.	
350	Erskine College, Due West, S. C.	A. B.	Gram.; comp. based on some author.	Latin: Gram.; comp.; Cæsar, 3 bks. Greek: Gram.; comp.; Anabasis, 2 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
351	Furman University, Greenville, S. C.	A. B.	Gram.; comp. based on some author.	Latin: Gram.; comp.; Cæsar, 3 bks. Greek: Gram.; comp.; Anabasis, 2 bks.
352	Newberry College, Newberry, S. C.	A. B.	Gram	Latin: Gram.; Cæsar, 3 bks. Greek: Gram.; reader or Anabasis, 2 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.

[a] See page 458.

***universities, colleges, and schools of technology*—Continued.**

Modern languages.	History.	Mathematics.	Science.	
	Rome; Greece	Arith.; algebra through quadratics; geometry (Wentworth, 2 bks.).		344
German: Gram.; comp.: Boisen's Preparatory Book, I; Schmitz's Elements, I and II.	Rome (optional)	Same as for A. B. course.		
French or German: El. gram.; sight translation.	Roman hist. to end of reign of Marcus Aurelius; Greek hist. to death of Alexander.	Algebra through quadratics; plane geometry.		345
Same as for A. B. course. See also classical languages.	Same as for A. B. course or hist. of England and U. S. hist.	Same as for A. B. course.		
Same as for Ph. B. course.	Same as for Ph. B. course.	Same as for A. B. course. Also solid and spherical geometry; plane trigonometry.		
Same as for A. B. course.		Same as for A. B. course.		
French and German: Gram.; easy translation.	U. S. hist	Algebra through quadratics; plane geometry.		346
	do	Arith.; algebra through quadratics.		347
	Same as for A. B. course.	Same as for A. B. course.		
	Gen. hist. (Myers); Roman hist. (Montgomery); civil government (Young); Greek hist. (Montgomery).	Algebra: geometry	Physics (Steele)	348
	U. S. hist.; hist. of South Carolina.	Arith.; algebra to quadratics.		349
	Same as for A. B. course.	Same as for A. B. course.		
	U. S. hist.; Greece; Rome.	Arith.; algebra through quadratics.		350
	Same as for A. B. course.	Same as for A. B. course.		
	U. S. hist.; Greece; Rome.	Arith.; algebra through quadratics.		351
	U. S. hist	Arith.; algebra to quadratics.	Descrip. and phys. geog.	352
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
353	Claflin University, Orangeburg, S. C.	A. B.	Gram.: comp.: rhetoric; English literature.	Latin: Gram.; Cæsar, 3 bks.; Cicero, 4 orations. Greek: Beginner's Book; gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
354	Wofford College, Spartanburg, S. C.	A. B.	Gram.; analysis; comp.	Latin: Gram.; Gate to Cæsar; Cæsar. Greek: White's Beginner's Book; Anabasis, bk. I. (Optional.)
355	Black Hills College, Hot Springs, S. Dak.	A. B. and Ph. B.	Gram.; rhetoric.	Latin: Gram.; Cæsar; Cicero; Virgil; Sallust. Greek: Gram.; Anabasis; Homer.
		B. S.	do.	Latin: Gram.; Cæsar; Cicero; Virgil.
		B. L.	do.	Latin: Same as for A. B. course.
356	Dakota University, Mitchell, S. Dak.	A. B.	Gram.; rhetoric; American literature.	Latin: Lessons; Cæsar; comp. Greek: Lessons; Anabasis.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do.	Latin: Lessons.
357	Redfield College, Redfield, S. Dak.	A. B.	Gram.: el. rhetoric: English and American literature.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; Sallust; prose comp. Greek: Gram.; reader; Anabasis, 4 bks.; Iliad, 3 bks.; prose comp.
		B. S. and Ph. B.	Same as for A. B. course.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations.
358	University of South Dakota, Vermilion, S. Dak.	A. B.	Gram.: comp. and rhetoric (Hill).	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 4 bks.; comp. Greek: Gram.; Anabasis, 1 bk.
		B. S.	Same as for A. B. course.	Latin: Same as for A. B. course.
359	Yankton College, Yankton, S. Dak.	A. B.	Gram.; rhetoric; comp.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; prose comp. Greek: Gram.; Anabasis, 3 bks.; Iliad, 2 bks.; prose comp.
		Ph. B.	Same as for A. B. course. Also: Hist. of English and American literature.	Latin: Same as for A. B. course.
		B. S.	Same as for A. B. course.	Same as for Ph. B. course.
360	U. S. Grant University, Athens, Tenn.	A. B.	Gram.; comp.	Latin: Gram.; Cæsar; Cicero; Virgil; Æneid; comp. Greek: Gram.; Anabasis; Iliad; comp.
		Ph. B. and B. S.	Gram.; comp.; rhetoric.	Latin: Same as for A. B. course.
361	King College, Bristol, Tenn.	A. B.	Gram.; Hawthorne's Wonder Book and True Stories from New England History; Evangeline; Hiawatha; Lamb's Dissertation on Roast Pig; Franklin's Autobiography; Sir Roger de Coverley; Sketch Book.	Latin: Collar and Daniell's Beginner's Book; Gate to Cæsar; Gallic War; gram. Greek: White's Beginner's Book.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Gen. hist.....	Algebra; geometry...	Physics; chemistry .	353
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also zoology; entomology; botany; agriculture.	
.....	.....	Arith.; algebra through quadratics.	.....	354
.....	Civil government; ancient hist.; modern hist.; English hist.; U. S. hist.	Algebra; geometry, plane and solid.	Phys. geog.; physics	
German: 2 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Phys. geog.; physics; gen. chemistry.	355
Same as for B. S. course.	.....do.....	.....do.....	Same as for A. B. course.	
.....	U. S. hist.....	Arith.; algebra; plane and solid geometry.	Phys. geog.; physiology; physics.	
German: 1 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	356
.....	.....do.....	Arith.; el. algebra ...	.....do.....	
.....	U. S. hist.; Greece; outlines of hist. (Swinton).	Arith.; algebra to logarithms; plane and solid geometry.	Physiology; phys. geog; el. physics.	357
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist.; civil government (Fiske); Rome.	Algebra through quadratics; plane and solid geometry.	Phys. geog.; el. physics (Gage); physiology (Martin); botany (Gray).	358
German: Gram.; comp.; reading.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
.....	U. S. hist. (Fiske); Greek and Roman hist. (Sheldon); civil government.	Arith.; algebra through quadratics; plane and solid geometry.	Polit. geog.; physiology; physics (Carhart and Chute).	
French: Gram.; La Langue Française (Berey); L'Abbe Constantin; Le Voyage de Monsieur Perrichon; comp.	Same as for A. B. course; also English hist. (Montgomery).	Same as for A. B. course.	Same as for A. B. course.	359
Same as for Ph. B. course.	Same as for Ph. B. course.	.....do.....	Same as for A. B. course. Also, phys. geog. (Tarr); botany (Macbride).	
.....	Greece and Eastern nations.	Arith.; algebra; plane geometry.	Phys. geog.; physiology; nat. history; botany.	
.....	Same as for A. B. course; also French hist.; civics.	Same as for A. B. course.	Same as for A. B. course. Also, physics; el. chemistry.	360
.....	U. S. hist.....	Arith.; el. algebra ...	Zoology (Holder); phys. geog.	361

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
362	American Temperance University, Harriman, Tenn.	A. B.	English classics: rhetoric (Hill).	Latin: Collar and Daniell; Cæsar: Cicero; Virgil; prose comp. Greek: White's Book; Anabasis; Iliad; prose comp.
		B. S	Gram.; American classics; English classics; rhetoric.	Latin: Collar and Daniell; Cæsar; Cicero; prose comp.
363	Hiwassee College, Hiwassee College, Tenn.	A. B. and B. S.	Gram. (Reed and Kellogg); spelling; penmanship.	.....
364	Southwestern Baptist University, Jackson, Tenn.	A. B.	Gram. (Reed and Kellogg); comp.: Sketch Book; David Copperfield; Merchant of Venice.	Latin: Cæsar, 3 bks.; Cicero, 2 orations. Greek: Anabasis, 4 bks.
		B. S	Same as for A. B. course.	.....
365	University of Tennessee, Knoxville, Tenn.[a]	All courses.	Gram.: comp., based on some author.	Latin: Gram.; comp.; reader; Nepos; Cæsar, 3 bks. Greek: Gram.; comp.; Anabasis, 8 chapters of bk. I.
366	Cumberland University, Lebanon, Tenn.	A. B.	Gram.: rhetoric: Julius Cæsar; Merchant of Venice; Miles Standish; Enoch Arden; Sketch Book; Ivanhoe; David Copperfield.	Latin: Collar and Daniell's First Book; Gate to Cæsar: gram.; Cæsar, 4 bks.; Virgil, 4 bks.; comp. Greek: White's Beginner's Book; gram.; Anabasis, 4 bks.; comp.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
367	Bethel College, McKenzie, Tenn.	A. B.	Gram.; rhetoric (Hill); Lockwood's English.	Latin: Gram.: Viri Romæ; Cæsar; Virgil. Greek: Beginner's Book; Anabasis
		Ph. B.	Same as for A. B. course.	Latin or Greek as for A. B. course.
		B. S	.....do.....	Latin: Same as for A. B. course.
368	Maryville College, Maryville, Tenn.	A. B.	Gram.: rhetoric (Waddy); word study; comp.	Latin: Gram.: Cæsar: Cicero; Virgil; Sallust; comp. Greek: Gram.; Anabasis, 2 bks.; Iliad.
		B. L.	Same as for A. B. course.	Latin: Gram.; Cæsar; Cicero; comp.
		B. S	Gram.; word study; comp.	.....
369	Milligan College, Milligan, Tenn.	A. B.	Gram.; comp.; higher lessons.	Latin: Gram.; comp. Greek: Gram.; Æsop's Fables.
		B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S	Gram.; comp	.....
370	Carson-Newman College, Mossy Creek, Tenn.	A. B.	Gram.; comp.; English (Reed and Kellogg).	Latin: Gram.; Nepos; Cæsar; Virgil; comp. Greek: Gram.; Anabasis, 6 or 8 chapters.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
371	Central Tennessee College, Nashville, Tenn.	A. B.	.....	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Gram.; comp.; Anabasis.
		Ph. B. and B. S.	English classics	Latin: Same as for A. B. course.
372	Fisk University, Nashville, Tenn.	A. B.	Gram.; comp.; higher lessons.	Latin: Gram.; reader; Cæsar, 5 bks.; Cicero; Virgil, 2 bks. Greek: Gram.; Anabasis, 3 bks.
		B. S	Same as for A. B. course. Also: American literature.	Latin: Same as for A. B. course.

[a] Examination required in English, mathematics, and one other subject.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	Gen. hist. (Myers); civil government.	Arith.; algebra; plane and solid geometry.	Phys. geog.; physiology; el. physics (Gage).	362
French or German: 1 yrs. work.	U. S. and gen. hist	Arith.; algebra	Phys. geog.; physiology; descrip. geog.	
	U. S. hist. (Lee); hist. of Tennessee (Phelan); hist. of England (Montgomery).	Arith	Geography; physiology.	363
	U. S. hist.; Greece; Rome.	Arith.; el. algebra	Physiology (Martin); phys. geog.	364
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist. (Fiske) and geography.	Arith.; algebra through quadratics.	El. physics (Gage); el. physiology (Martin).	365
	Gen. hist. (Myers); U. S. hist. (Montgomery).	Arith.; algebra; plane geometry.	Geography	366
	Same as for A. B. course.	Same as for A. B. course.	Phys. geog. (Maury); physics (Gage); physiology (Martin); geog.	
	U. S. hist	Arith.; algebra	Physiology (Tracy); el. physics; el. astronomy.	
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	367
	do	do	do	
	Greece; Rome	Arith.; algebra	Phys. geog. (Houston); physiology (Walker).	368
		Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist	Arith.; algebra	Phys. geog	
	do	Arith.; el. algebra	Physiology; phys. geog.	
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	369
	do	do	do	
	U. S. hist.; English hist.; hist. of Tennessee.	Arith.; algebra	Geog. (Houston); nat. phil. (Avery); geology of Tennessee.	370
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Gen. hist	Algebra; geometry	Physics; astronomy; botany	371
German: 2 yrs. work	Same as for A. B. course.	Same as for A. B. course.	Astronomy; botany	
	U. S. hist.; English hist.; gen. hist. (Myers).	Algebra; plane and solid geometry.	Phys. geog	372
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
373	Roger Williams University, Nashville, Tenn.	A. B.....	Gram.; analysis; comp...	Latin: Gram.; Cæsar; Cicero; Virgil; Ovid. Greek: Gram.; Anabasis; Homer.
374	University of Nashville, Nashville, Tenn.	All courses.	Gram.; comp.; Tales of a Traveller; Silas Marner; Woodstock.	Latin: Beginner's Book; Collar's Gate to Cæsar.
375	Vanderbilt University, Nashville, Tenn.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks.; Cicero, 4 orations; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks., or Odyssey, 4 bks.; comp.
		B. S. and Engineering.	Same as for A. B. course..	Latin: Same as for A. B. course (optional).
376	University of the South, Sewanee, Tenn. *b*	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Virgil, 4 bks.; Cicero, 4 orations; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
377	Burritt College, Spencer, Tenn.	A. B., B. S., M. E. L.	Gram.; higher lessons	.....
378	Sweetwater College, Sweetwater, Tenn.	A. B. and B. S.	Gram.; reading; spelling; comp.	.....
379	Greeneville and Tusculum College, Tusculum, Tenn.	A. B.....	Gram.; analysis; comp.; rhetoric; English classics: Irving, Addison.	Latin: Gram.; comp.; Cæsar; Cicero against Catiline. Greek: First Lessons; comp.
380	Washington College, Washington College, Tenn.	A. B.....	Gram.; English classics; rhetoric.	Latin: Gram.; Cæsar; Sallust. Greek: First Lessons.
		B. L.....	Same as for A. B. course..	Latin: First Lessons .....
		B. S.....	Gram.; English classics...	.....
381	St. Edward's College, Austin, Tex.	A. B.....	Gram. (Harvey); comp.; rhetoric.	Latin: Gram.; Viri Romae; Nepos; Cæsar; comp. Greek: Gram.; exercises (Breitter); Anabasis.
382	University of Texas, Austin, Tex.	A. B.....	Gram.; rhetoric; comp.; Macaulay's Essay on Warren Hastings; Tennyson's Dora; Twice Told Tales.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 4 orations; Nepos, 4 lives. Greek: Gram.; Anabasis, 3 bks.; comp
		B. S	.....do	.....
		B. L.....	.....do	Latin or Greek as for A. B. course (optional with one modern language).
383	Howard Payne College, Brownwood, Tex.	A. B.....	Gram.; classics.....	Latin: Gram.; Cæsar, 4 bks. Greek: Gram.; White's Lessons; Anabasis, 1 bk.
384	Henry College, Campbell, Tex.	A. B.....	Gram.; comp.....	Latin: Collar and Daniell's Beginner's Book.

a See page 458.
b Students admitted on examination in English and any two other subjects.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
		Algebra; geometry	Phys. geog	373
	U. S. hist	Arith.; el. algebra; geometry, 2 bks.	Geography	374
	U. S. hist. (Montgomery).	Algebra through logarithms; plane and solid geometry.	do	
French: Gram. and exercises (Grandgent); reader (Super); Morceaux Choisis d'Alphonse Daudet; prose comp. Or German: Gram. (Thomas); reader (Brandt); comp.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	375
	Rome (Creighton); Greece (Fyffe); English and American hist. (Montgomery); mediæval and modern hist. (Myers).	Algebra through quadratics; plane geometry.		376
	U. S. hist. (Barnes' Brief).	Arith.; el. algebra (Wentworth's First Steps).	Phys. geog. (Cornell); geology of Tennessee (Safford and Killebrew).	377
	U. S. hist	Arith	Geography	378
	U. S. and English hist.	Arith.; algebra through determinants.	Physiology	379
	U. S. hist.; hist. of Tennessee.	Arith.; algebra; plane geometry.	Phys. geog.; physiology; el. physics.	380
	U. S. hist	Arith.; algebra	do	
	do	Arith.; el. algebra	Phys. geog	
	U. S. hist.; ancient, Roman, and mediæval hist. (Gazeau).	Arith.; algebra to series.		381
	Gen. hist. (Myers)	Arith.; algebra through quadratics; plane geometry.		
	do	do		
French: Joynes-Otto's Introductory French Lessons; Joynes' Fairy Tales; L'Abbe Constantin. Or German: Gram. (Joynes-Meissner); reader (Brandt); Andersen's Maerchen; Der Zerbrochene Krug. (1 required; other is optional with Latin or Greek.)	do	do		382
	U. S. hist. (Johnston); Texas hist.; civil government; American politics.	Arith.; algebra through quadratits; geometry.	Physiology; phys. geog.; el. physics.	383
	U. S. hist.; English hist. (Montgomery).	School algebra to radicals (Wentworth); arith.	Phys. geog.; physiology.	384

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
385	Fort Worth University, Fort Worth, Tex.	A. B.	Gram.; comp.; Lockwood's Lessons; classics; rhetoric.	Latin: Gram. and Lessons; Viri Romæ; Cæsar; Cicero; Virgil; prose comp. Greek: Gram. and Lessons; Anabasis.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
386	Southwestern University, Georgetown, Tex.	A. B.	Gram.; classics	Latin: Gram.; Cæsar, 4 bks. Greek: Gram.; White's Beginner's Book.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course (optional).
		Ph. B.	do	Latin or Greek as for A. B. course.
387	Wiley University, Marshall, Tex.	A. B.	Rhetoric (Kellogg)	Latin: Gram.; comp.; Cæsar; Cicero; Virgil, 1 bk. Greek: Gram.; comp.; Anabasis, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
388	Austin College, Sherman, Tex.	A. B.	Gram.; Lockwood's Lessons.	Latin: Gram.; Cæsar Greek: Beginner's Book.
		B. S	Same as for A. B. course.	Latin: Same as for A. B course.
389	Trinity University, Tehuacana, Tex.	A. B.	Gram.; American literature.	Latin: Gram.; comp.; Cæsar; Virgil. Greek: Gram.; Anabasis.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
390	Add-Ran Christian University, Waco, Tex.	A. B.	Gram.; analysis; rhetoric.	Latin: Lessons (Cory); comp.; Cicero, select orations. Greek: White's Beginner's Book.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	
391	Baylor University, Waco, Tex.	A. B.	Gram.; comp. and rhetoric (Waddy).	Latin: Collar and Daniell's Beginner's Book; comp.; Cæsar; reader. Greek: Beginner's Book.
		B. S. and B. L.	Gram.; comp.; rhetoric; English classics.	Latin: Same as for A. B. course.
392	Paul Quinn College, Waco, Tex.	A. B.	Gram.; comp	Latin: Gram.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis.
		B. S	Same as for A. B. course.	Latin: Harper and Burgess' Inductive. Greek: Harper and Burgess' Inductive.
393	Brigham Young College, Logan, Utah.	B. L.	Comp.; Merchant of Venice; Julius Cæsar; Marmion; Lady of the Lake; Ivanhoe; House of Seven Gables; Scarlet Letter; Macaulay's Second Essay on the Earl of Chatham; Silas Marner; Sohrab and Rustum.	Latin: Collar and Daniell's Beginner's Book; Cæsar, 1 bk.; gram. (Optional with French or German.)
		B. S	Same as for A. B. course.	
394	University of Utah, Salt Lake City, Utah.	A. B.	Gram.; rhetoric; comp.; Snow Bound; Deserted Village; Evangeline; Lady of the Lake; Ivanhoe; As You Like It; Merchant of Venice; Silas Marner; Webster's First Bunker Hill Oration; Tales of a Traveler.	Candidate must offer a certain amount of language from the following: Latin, Greek, French, German.
		B. S	Same as for A. B. course.	Elective

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	American hist. (Montgomery); civics; gen. hist. (Myers).	Arith.; algebra; geometry, plane and solid.	Phys. geog.; physiology; el. chemistry; el. physics (Gage).	385
German: 2 yrs. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	American hist. (Montgomery); civics; gen. hist. (Myers).	Arith.; algebra through quadratics.		
	Same as for A. B. course.	Same as for A. B. course.		386
	do	do		
	Civil government; gen. hist. (Anderson).	Arith.; algebra; plane and solid geometry.	Phys. geog.; astronomy (Steele).	387
German, French, or Spanish.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist. (Cooper).	Arith.; el. algebra		388
	U. S. hist.; gen. hist. (Myers).	Same as for A. B. course.	Phys. geog	
	Rome (Creighton); Greece (Fyffe); U. S. hist.	Arith.; algebra; plane geometry.	Physics (Shaw)	389
	U. S. hist.; Rome	Same as for A. B. course.	Same as for A. B. course.	
	U. S. hist. (Barnes)	Arith.; algebra; plane geometry.	Physiology (Martin); physics (Carhart and Chute); phys. geog.	
German: Gram.; Kleine Geschichten; Andersen's Mærchen.	Same as for A. B. course.	Same as for A. B course.	Same as for A. B. course.	390
do	do	do	do	
	U. S. hist.; Texas hist.; gen. hist.; civil government.	Arith.; school algebra; plane geometry.	Physiology (Smith); el. physics; phys. geog. (Houston).	391
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	Gen. hist.; U. S. hist.; civil government.	Algebra; plane geometry.	Physics; botany (Gray); phys. geog.; physiology.	
	Same as for A. B. course.	Algebra	Phys. geog.; physiology.	392
German: Dreyspring's Easy Lessons and First Reader; Mærchen. Or French: Keetel's Analytical and Pract. Gram. and Reader. (Optional with Latin.)	U. S. hist. (Barnes)	Arith.; el. algebra (Wentworth); plane geometry.	Physics (Avery); physiology (Smith).	393
French or German as above.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
See Classical languages.	U. S. hist	Arith.; el. algebra; plane geometry.	Physiology (Martin).	394
Elective	Same as for A. B. course.	Same as for A. B. course. Also, electives.	Physiology. Also, electives.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
395	University of Vermont, Burlington, Vt.	A. B.	Gram.; orthoepy; comp.; Merchant of Venice; As You Like It; Marmion; Evangeline; Macaulay's Essay on Addison; Tales of a Traveler; Twice Told Tales; Silas Marner; Sir Roger de Coverley.	Latin: Gram.; prose comp.; Cæsar, 4 bks.; Cicero, 6 orations and De Amicitia; Virgil, 6 bks. of Æneid and Eclogues. Greek: Gram.; prose comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		Ph. B.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S.	do	
		Engineering.	do	
396	Middlebury College, Middlebury, Vt.	A. B.	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; sight translation; Cicero's orations against Catiline, II, III, IV; Virgil's Æneid, Bks. I-V. Greek: Gram.; comp.; sight translation; Anabasis, Bk. II; Iliad, Bks. I and II.
		B. S.	Same as for A. B. course. Also American literature (Richardson's Primer).	Latin: Same as for A. B. course.
397	Randolph-Macon College, Ashland, Va.	A. B. and Ph. B.	Gram.; cl. rhetoric	Latin: El. gram.; Cæsar, 4 bks.
398	Bridgewater College, Bridgewater, Va.	A. B. and B. S.	Gram.; comp	Latin: Beginner's Book. Greek: Beginner's Book.
399	University of Virginia, Charlottesville, Va. *b*		Gram.; cl. rhetoric.; comp.	Latin: Gram.; Cæsar; Virgil. Greek: Gram.; Anabasis, 2 bks.
400	Emory and Henry College, Emory, Va.	A. B.	Gram	Latin: Gram.; comp.; Cæsar, 3 bks. Greek: White's Beginner's Book (optional).
		B. S.	do	
401	Hampden-Sidney College, Hampden-Sidney, Va.			Latin: El. gram. (Bingham); Cæsar. Greek: White's Beginner's Book; Backie's Colloquia; Anabasis, 1 bk.
402	Washington and Lee University, Lexington, Va.		Requirements of Commission of New England Colleges. *a*	Latin: Cæsar, Bks. II to V; Cicero, Manilian Law and 4 other orations; Nepos, 15 lives, or Virgil's Æneid, I, II, IV; comp.; gram.
403	Roanoke College, Salem, Va.	A. B.	Gram.; comp	Latin: Gram.; Nepos; Cæsar. Greek: Gram.; translation of easy prose. (Optional.)
404	College of William and Mary, Williamsburg, Va.		Gram.; literature (Richardson); Marmion; Addison.	Latin: Collar and Daniell's First Book; Viri Romæ. Greek: Primer (Frost).
405	Vashon College, Burton, Wash.	A. B., B. S., and C. E.	Gram	
406	Colfax College, Colfax, Wash.	A. B.	do	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis.

a See page 458.
b Requirements given are for entrance to individual schools.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	Ancient hist.; Greek hist. to Alexander; Roman hist. to Augustus.	Arith.; algebra through quadratics; plane geometry.	Ancient and modern geography.	395
French or German or science.	Same as for A. B. course.	Same as for A. B. course.	See modern languages.	
.....	.....	....do	Same as for A. B. course.	
.....	.....	Same as for A. B. course. Also, solid geometry.	....do	
.....	.....	Arith.; algebra through quadratics; plane geometry, 4 bks.	.....	396
French or German: El. gram.; sight translation.	English hist. (Montgomery); American hist. (Johnston).	Same as for A. B. course.	.....	
.....	.....	Arith.; algebra through quadratics; 3 bks. of Euclid.	.....	397
.....	.....	Arith.; algebra; cl. geometry.	.....	398
Rudiments	.....	Arith.; algebra through quadratics; plane geometry, 3 bks.	.....	399
.....	U. S. hist	Arith.; algebra through quadratics; plane geometry, 3 bks.	Phys. geog	400
.....	....do	....do	....do	
.....	.....	Arith.; algebra to quadratics.	.....	401
.....	U. S. hist	Arith.; algebra to quadratics; plane geometry, 3 bks.	Polit. and historical geog.	402
.....	....do	Arith.; algebra through quadratics.	Modern geog	403
.....	.....	Arith.; algebra to quadratics; plane geometry, 2 bks.	Civil and phys. geog. (Maury).	404
.....	U. S. hist	Arith	.....	405
.....	U. S. hist.; Roman and Greek hist.; civil government.	Arith.; algebra	Geography; physiology; zoology.	406

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
407	University of Washington, Seattle, Wash.	A. B.	Comp.; Merchant of Venice; Evangeline; Lay of the Last Minstrel; The Cotter's Saturday Night.	Latin: Gram.; Cæsar, 4 bks.; Virgil, 6 bks.; Cicero, 4 orations; comp. Greek: Gram.; Anabasis, 2 bks.
		B. S	Same as for A. B. course.	Latin: Gram.; Cæsar, 4 bks. (Optional with French or German.)
		Ph. B.	do	Same as for A. B. course.
408	Gonzaga College, Spokane, Wash.	A. B.	Gram.; comp.; Coppens' Practical Introduction.	Latin: Gram. (Yenni); Historia Sacra; Viri Romæ; Phædrus; Cæsar; Nepos, 500 lines; Cicero, Select Letters; Ovid, 300 lines. Greek: Gram. (Yenni); Æsop; Lucian; Anabasis, 500 lines.
409	Whitworth College, Sumner, Wash.	A. B.	Gram.; analysis; comp.	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Gram.; comp.; Anabasis; Herodotus.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
410	Puget Sound University, Tacoma, Wash.	A. B.	Comp.; el. rhetoric; history of literature.	Latin: Gram.; comp.; Cæsar; Cicero; Virgil. Greek: Gram.; Anabasis.
		B. S	Same as for A. B. course.	Latin: Gram.; comp.; Cæsar; Cicero.
		Ph. B	do	Latin: Same as for A. B. course.
		C. E.	do	Same as for B. S. course.
411	Whitman College, Walla Walla, Wash.	A. B.	Gram.; el. rhetoric	Latin: Gram.; comp.; Cæsar, 4 bks.; Ovid or Sallust; Virgil, 6 bks.; Cicero, 7 orations. Greek: Gram.; comp.; Anabasis, 4 bks.; Herodotus; Iliad or Odyssey, 6 bks.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Latin: Same as for A. B. course (optional with French or German).
412	Barboursville College, Barboursville, W. Va.	A. B., B. S., and B. L.	Gram.; comp.	
413	Bethany College, Bethany, W. Va.	A. B., B. S., and B. L.	Gram	Latin: Tuell and Fowler's First Book; Cæsar, 1 bk.
414	West Virginia University, Morgantown, W. Va.	A. B.	Gram.; analysis; Lockwood's Elements of English; comp. and rhetoric (Waddy).	Latin: Lessons; Cæsar; Cicero; Virgil; comp.
		Engineering.	Same as for A. B. course.	
415	Lawrence University, Appleton, Wis.	A. B.	Requirements of Commission of New England Colleges. [a]	Latin: Gram.; Cæsar, 4 bks; Cicero, 7 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
		B. L.	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. S	do	

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
Elective	U. S. hist. (Montgomery); civil government (Fiske).	Arith.; algebra to quadratics; plane geometry, 5 bks.	Physics (Carhart and Chute); botany (Gray, Coulter).	
French or German: Gram.; translation; comp.; 150 pages of prose. (Optional with Latin.)	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: Chemistry, zoology or geology.	407
French and German	do	do	Same as for A. B. course.	
	U. S. hist. (Sadlier); modern hist. (Fredet).	Arith.; algebra		408
	U. S. hist	Arith.; algebra; geometry, 3 bks.	Phys. geog	409
	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
	English hist.; civil government; Roman and Greek hist.	Arith.; algebra; plane geometry.	Physiology; phys. geog.; el. physics.	
French	English and Roman hist.; civil government.	Same as for A. B. course. Also solid geometry.	Same as for A. B. course. Also: Astronomy.	410
Same as for B. S. course.	English hist.; civil government.	Same as for B. S. course.	Same as for A. B. course.	
do	Same as for Ph. B. course.	do	Same as for B. S. course.	
French or German: Gram.; el. reading.	American, English, ancient, mediæval and modern hist.	Arith.; algebra through quadratics; plane geometry.	El. physics; phys. geog.	
	Same as for A. B. course.	Same as for A. B. course.	El. physics; phys. geog.; zoology; botany; physiology; astronomy; political science.	411
French or German (optional with Latin).	do	do	Same as for A. B. course.	
	U. S. hist.; civil government.	Arith.; el. algebra	Phys. geog; physiology.	412
	U. S. hist.; gen. hist. (Myers).	Arith.; algebra through logarithms (Wentworth's School).		413
		Arith.; algebra to logarithms; plane geometry.		
	U. S. hist. (Fiske)	Same as for A. B. course.	Physiology; botany or physics; phys. geog.; drawing; mech. arts.	414
	U. S. hist.; civil government; Rome and Greece (Myers); modern hist. (Montgomery).	Arith.; algebra; plane and 1 bk. of solid geometry.	Physiology; phys. geog.; el. physics.	
French or German: 2 yrs'. work.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	415
French and German: Each 2 yrs'. work.	do	do	Same as for A. B. course. Also: El. botany.	

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
416	Beloit College, Beloit, Wis.	A. B	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; Cæsar, 3 bks.; Virgil's Æneid, 6 bks., and Eclogues; Cicero, 7 orations; Sallust's Catiline; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 2 bks.; comp.
		Ph. B.	Same as for A. B. course.	Latin: Gram.; Cæsar, 3 bks.; Virgil, 6 bks.; Cicero, 5 orations; comp.
		B. S	do	Latin: Gram.; Cæsar, 3 bks; Virgil, 6 bks.; comp. (Optional with German.)
417	University of Wisconsin, Madison, Wis.	A. B	Requirements of Commission of New England Colleges.[a]	Latin: Gram.; el. book (Collar and Daniell); Cæsar, 4 bks., or Nepos; Cæsar, 2 bks., and selections; Cicero, 7 orations; Virgil, 6 bks.; comp. Greek: Gram.; lessons; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
		B. L. (1)	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L. (2)	Same as for A. B. course. Also hist. of English literature (Gayley) and study of representative authors (optional with German).	do
		B. L. (3)	Same as for A. B. course. Also hist. of English literature (Gayley) and study of representative authors.	See modern languages
		B. S. and engineering.	Same as for A. B. course. English literature (elective); rhetoric (elective).	Two years' work in Latin (elective). (Two years' work selected from electives must be offered.)
		Agriculture.	Gram.; analysis	
418	Milton College, Milton, Wis.	A. B	Gram.; analysis; el. rhetoric.	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp.
		B. S	Same as for A. B. course.	Latin: Same as for A. B. course.
		B. L.	do	Latin: Gram.; reader; Cæsar, 4 bks.; comp.
419	Marquette College, Milwaukee, Wis.	A. B	Gram. (Goold Brown); comp.; Coppens' Practical Introduction; literature (American and Catholic).	Latin: Gram. (Yenni); Historia Sacra; comp.; Cicero, Extracts and Letters, 300 lines; Cæsar, 300 lines. Greek: Gram. (Yenni); Æsop; Hierocles, Lucian.

[a] See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U.S. hist. (Johnston); Greece (Smith); Rome (Myers).	Arith.; algebra through quadratics; geometry to the sphere.	Physiology (Martin); phys. geog. (Geikie); el. physics (Avery).	
German: Gram.; reader; Bernhardt's Im Zwielicht. Vol. I; Auerbach's Brigitta; Bernhardt's Novelletten-Bibliothek, Vol. I; Minna von Barnhelm.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: Botany (Gray); chemistry (Williams).	416
German as for Ph. B. course (optional with Latin).	Same as for A. B. course. Also: England (Montgomery).	.....do.....	Three of the following 1 yr. courses: Physics; chemistry; botany and zoology or gen. biology; physiology; phys. geog., or physiography. (Optional with Latin or German.)	
.....	U. S. hist. (Thomas); ancient hist. (Myers); English hist. (Gardiner).	Arith.; algebra, plane and solid geometry.	Polit. and phys. geog.	
German: Gram.; reading; Minna von Barnhelm; Der Neffe als Onkel or Die Journalisten; memorizing 9 to 12 poems.	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course.	
German as above (optional with English literature and physics or with physics, physiology, and botany).	.....do.....	.....do.....	Same as for A. B. course. See also under Modern languages.	417
Two years' work in French, German, or Latin is urged.	.....do.....	.....do.....	Same as for A. B. course. Also: Physics (Gage); physiology (Martin); botany.	
German as for B. L. (1) course or equivalent amount of French.	U.S. hist.; ancient and English history (elective); civil government (elective).	.....do.....	Same as for B. L. (3) course. Zoology (elective); astronomy (elective).	
.....	U.S. hist	Arith.; algebra through quadratics; plane and solid geometry.	Same as for B. L. (3) course.	
.....	U.S. hist.; Greece; Rome.	.....do.....	Descrip. and phys. geog.	
German: Gram. and reader; comp.	U.S. hist.; civil government; Rome.	Same as for A. B. course.	Same as for A. B. course. Also: El. physics; physiology; botany.	418
Same as for B. S. course.	Same as for A. B. course. Also: Civil government.	.....do.....	Same as for B. S. course.	
.....	U. S. hist. (Sadlier); modern hist. (Fredet).	Arith.; algebra through radicals.	Geography	419

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
420	Ripon College, Ripon, Wis.	A. B. (1)	Gram.; rhetoric (Clark's Briefer); English literature (Pancoast).	Latin: Gram.; Cæsar, 2 bks.; Cicero, 6 orations; Virgil, 6 bks.; Sallust's Catiline; comp. Greek: Gram.; Lessons (Keep); Anabasis, 4 bks.; Iliad, 2 bks.
		A. B. (2)	Same as above	Latin: Same as above
		A. B. (3)	do	do
421	Northwestern University, Watertown, Wis.	A. B	Gram. and comp. (Southworth); comp.; American literature; el. rhetoric; poems.	Latin: Lattmann's Gram. exercises; Second Reader; Cæsar, 2 bks. Greek: Kaegi's First Book; etymology.
		A. B	Gram.: Lockwood's Lessons; As You Like It; Defoe's History of the Plague in London; Tales of a Traveler; Twice Told Tales; Evangeline; Silas Marner.	Latin: Collar's Gate to Cæsar; Cæsar, 2 bks.; Cicero, 4 orations. Greek: White's Beginner's Book.
422	University of Wyoming, Laramie, Wyo.	B. S. and B. L.	Same as for A. B. course	Latin: Same as for A. B. course.
		B. Agr	Gram.: comp	
		Engineering.	Gram.: comp.: Lessons	
		A. B	Gram.: comp.: analysis; rhetoric: literature.	Latin: Collar and Daniell's Beginner's Book; Cæsar, 4 bks.; Virgil, 6 bks.; prosody; Cicero, 5 orations; comp. Greek: White's Beginner's Book; Anabasis; Iliad, 3 bks.; comp.
		B. L	Same as for A. B. course	Latin: Same as for A. B. course.
423	Mills College, Mills College, Cal.			

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
German or French: Gram.; easy reading at sight.	U. S. hist.; Rome and Greece (Myers).	Arith.; algebra; geometry, 4 bks. of Chauvenet.	Phys. geog.; physiology (Cutter); physics (Gage); botany (Wood).	420
German and French as above.	Same as above. Also Mediæval hist. (Myers); civil government.	Same as above.....	Same as above. Also: Zoology (Packard).	
Same as above.....	Same as above. Also: Modern hist. (Myers).	.....do.....	Same as A. B. (1).....	
German: Doobeln Lesebuch fuer Sexta; Lyon Handbuch. First, Second, and Third Course; comp.; poems.	Greece (Stacke); Rome; U. S. hist.; mediæval hist. (Myers).	Arith.; el. algebra through quadratics.	Geography; botany; drawing; phys. geog. (Geikie).	421
.....	U. S. hist.; civil government.	Arith.; algebra through quadratics; plane and solid geometry.	Descrip. and phys. geog.; physiology.	
.....	Same as for A. B. course.	Same as for A. B. course.	Same as for A. B. course. Also: El. physics; botany.	422
.....	U. S. hist	Arith.; el. algebra....	Physiology; phys. geog.	
.....	Same as for B. Agr. course.	Arith.; algebra.....	Physiology; phys. geog.; el. physics; drawing.	
.....	Greek hist. to death of Alexander; Roman hist. to death of Commodus; civil government.	Arith.; algebra; plane geometry.	Physics	
French: Gram.; comp.: Sauveur's Causeries avec mes Elèves; L'Abbé Constantin; Contes de Daudet; George Sand; Mlle. de la Seiglière (Sandeau); lyrics; plays. Or German: Gram.; comp.; Stern's Studien und Plauderei en; Grimm's Fairy Tales; Storm's Immensee; Wilhelm Tell; Schiller's Lied von der Glocke; Life of Lessing; Minna von Barnhelm; Nathan der Weise.	Same as for A. B. course. Also mediæval and modern hist.	Same as for A. B. course.	Same as for A. B. course.	423

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
424	Rockford College, Rockford, Ill.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; First Latin Book (Comstock); Cæsar, 4 bks.; Virgil, 6 bks., or 5 bks. and 6 Eclogues; Cicero, 7 orations; comp. Greek: Gram.; First Lessons (White); Anabasis, 3 bks.; Iliad, 3 bks.; comp. (Optional with French or German.)
425	Woman's College of Baltimore, Baltimore, Md.	A. B.....	.....do.....	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks. (Optional with French or German.)
426	Radcliffe College, Cambridge, Mass.	A. B.....	Same as for Harvard University. *b*	Same as for Harvard University. *b*
		A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks., or 5 bks. and the Eclogues, or 1,000 lines of Ovid; comp. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. L.....	Rhetoric; comp. covering simple narration, description, exposition, and argument.	Latin or Greek as for A. B. course.
427	Smith College, Northampton, Mass.			
		B. S.....	Same as for A. B. course..	Latin: Same as for A. B. course.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram.; Sauveur's Causeries avec mes Elèves; La Petite Fadette (Sand); Fables de la Fontaine (Sauveur); Bôcher's College Plays (5); L'Abbe Constantin; Le Cachet Rouge. Or German: Gram.; Bernhardt's Sprach und Lesebuch and Novelletten Bibliothek, Vol. I: Aus Meiner Welt (Meissner); 2 comedies; Heimburg's Ihr Einziger Bruder; Wilhelm Tell or Maria Stuart. (Optional with Greek.)	U. S. hist.	Arith.; algebra through geometrical progression (Wentworth's Complete); plane geometry.	Phys. geog. or zoology with laboratory work or physics with laboratory work.	424
French or German: Gram.; comp.; sight translation. (Optional with Greek.)	U. S. hist.; hist of England.	Arith.; algebra through progressions; plane geometry.	Elements of one natural science.	425
Same as for Harvard University. *b*	Same as for Harvard University. *b*	Same as for Harvard University. *b*	Same as for Harvard University. *b*	426
	Greek hist. to death of Alexander; Roman hist. to death of Marcus Aurelius.	Arith.; algebra through progressions; plane geometry.		
French: Gram.; comp.; La Fontaine's Fables; Mlle. de la Seiglière, the play; Jeanne d'Arc; lyrics (Bowen); Le Curé de Tours; Pêcheur d'Islande; conversation. Or German: Gram.; comp.; Fluch der Schoenheit; Aus dem Staat Friedrichs des Grossen; Die Harzreise; Dichtung und Wahrheit, 3 bks.; Minna von Barnhelm; Tell; Lied von der Glocke; 30 pp. of lyrics or ballads; conversation.	Greek or Roman hist. as for A. B. course.	Same as for A. B. course.		427
Same as for B. L. course.	Roman hist. to death of Marcus Aurelius.	....do....	Botany (Gray); physiology (Martin); el. physics.	

b See pp. 530–531.

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
428	Mount Holyoke College, South Hadley, Mass.	A. B	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. S	Same as for A. B. course...	Latin: Same as for A. B. course. Greek: Same as for A. B. course. (Optional with French or German.)
		B. L	Same as for A. B. course...	Same as for B. S. course...
429	Wellesley College, Wellesley, Mass. *b*	A. B	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 or 7 orations; Virgil, 6 bks. Greek: Maximum—Gram.; comp.; Anabasis, 3 bks.; Iliad, 3 bks.; sight translation of Attic and Homeric Greek. Minimum—Gram.; First Lessons; Anabasis, 3 chaptors; comp.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
	U. S. hist.; Greece to death of Alexander; Rome to death of Marcus Aurelius.	Arith.; algebra through progressions; plane geometry.		
French: Méthode Berlitz, 1er Livre; gram.; 6 Fables de la Fontaine; Contes Merveilleux (Sauveur); 2 of Böcher's College Plays; 2 bks. of modern prose writers; Esther (Racine); Le Cid (Corneille).	Same as for A. B. course.	Same as for A. B. course.	El. botany (Spalding); el. physics (Avery).	
Or German: Otto's el. gram.; Das Deutsche Buch (Van Daell); lyric poems and ballads; Brandt's Reader; narrations; memorizing; comp.; exercises (Stein); Fluch der Schoenheit; Spielmann's Kind (Riehl); L'Arrabiata (Heyse). (Optional with Greek.)				428
Same as for B. S. course.	Same as for A. B. course. Also: English hist. (Montgomery.)	....do....		
French: Maximum—Gram.; comp.; conversation; Colomba; Contes Choisis d'Alphonse Daudet; L'Abbé Constantin; 2 of Böcher's College Plays; Le Bourgeois Gentilhomme; Horace; Fontaine's Fables, I; La Mare au Diable; Bowen's Selected Lyrics (20 pages); La Prise de la Bastille; Peppino. Minimum—Gram.; comp.; Contes Choisis d'Alphonse Daudet; L'Abbé Constantin; La Cigale chez les Fourmis; La Prise de la Bastille; 4 of Fontaine's Fables and 3 of Hugo's poems committed to memory.	U. S. hist. to close of Revolutionary war; Greece to the Peloponnesian war or English hist.; Rome to close of first century A. D.	Algebra through quadratics and progressions; plane geometry (Chauvenet).	Ancient geog. Any one of the three following sciences may be offered in place of the minimum requirement in language: Physics (Harvard requirement); chemistry (Remsen's Introduction); zoology (Colton).	429
German: Maximum—Gram.; comp.; Deutsches Lesebuch (Wenckebach, 1-126, 167-247); Aus meiner Welt; Minna von Barnhelm; Dichtung und Wahrheit; conversation; Die Schönsten Deutscher Lieder (Wenckebach). Minimum—Gram.; comp.; reading; poetry to memory in the Lesebuch; idioms.				

b Candidates must offer maximum requirement in Greek, French, or German, and minimum in Greek, French, or German, but not both in the same language. See also under Science.

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
430	Evelyn College, Princeton, N. J.	A. B.....	Comp. based on some work in literature.	Latin: Gram.; comp.; Cæsar, 5 bks.; Virgil, 6 bks.; Cicero, 9 orations. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.
		B. L.....	Same as for A. B. course..	Latin: Same as for A. B. course.
431	Wells College, Aurora, N. Y.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, 6 bks.; comp. Greek: Gram.; Anabasis, 4 bks.; Iliad, 3 bks.; comp. (Optional with French or German.)
432	Elmira College, Elmira, N. Y.	A. B. and B. S.	Gram.; cl. rhetoric; comp.; Midsummer Night's Dream; Defoe's History of the Plague in London; Tales of a Traveller; Woodstock; Macaulay's Essay on Milton; Evangeline; Silas Marner.	Latin. Gram.; comp.; Cæsar, 4 bks.; Cicero, 6 orations, including Manilian Law and for Archias; Virgil. 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks; Iliad, 2 bks. (Optional with French or German.)
433	Barnard College, New York, N. Y.	A. B.....	Requirements of Commission of New England Colleges. *a*	Latin: Gram.; comp.; Cæsar, 5 bks.; Cicero, 6 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks.; Iliad, 3 bks.

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French or German: Sight translation into and from English; el. gram.	El. U. S. or English hist.	Arith.; algebra through quadratics; plane geometry.	.....	
French and German as for A. B. course. Also French: Gram.; comp.; La Tulipe Noire; Molière. Or German: Gram.; comp.; Hermann und Dorothea.	Same as for A. B. course.	Same as for A. B. course.	.....	430
French: Gram.; comp.; hist. of French literature in 19th century; Sauveur's Petites Causeries; L'Abbé Constantin; La Belle Nivernaise; Gautier's Jettatura; Scribe's Le Verre d'Eau; Coppée's Le Luthrier de Crémone; Mlle. de la Seiglière; La Mare au Diable; Merimée's Colomba. Or German: Gram.; comp.; Minna von Barnhelm; Hermann und Dorothea; Wilhelm Tell; memorizing 10 lyrics and ballads. Or el. French and el. German. (Optional with Greek.)	American hist. to close of Revolutionary war; ancient hist. to reign of Augustus (Myers).	Algebra through quadratics; plane geometry.	.....	431
French: La Langue Française (Bercy); Petite Gram. (Sauveur); 6 fables (La Fontaine); Contes et Nouvelles (Alliot); 2 college plays (Bôcher); comp. (Grandgent); L'Abbé Constantin; Colomba; Le Voyage de Monsieur Perrichon; Le Bourgeois Gentilhomme. Or German: Gram.; reader (Joynes); Immensee; Höher als die Kirche (Hillern); Andersen's Bilderbuch ohne Bilder; Tell; L'Arrabiata. (Optional with Greek.)	U. S. hist. (Barnes); England (Anderson); Greece; Rome.	Arith.; algebra through quadratics; plane geometry.	El. chemistry and physics.	432
French: El. gram.; Rambaud's Histoire de la Civilisation Française; easy reading. Or German: El. gram.; Märchen (Grimm or Hauff); easy reading.	Ancient hist. of Greece and Rome (Myers).	Arith.; algebra through quadratics; plane geometry.	.....	433

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
434	Vassar College, Poughkeepsie, N. Y.	A. B.....	Requirements of Commission of New England Colleges.	Latin: Gram.; comp.; Cæsar, 4 bks.; Cicero, 7 orations; Virgil, 6 bks. Greek: Gram.; comp.; Anabasis, 4 bks., or Hellenica; Iliad, 3 bks., or Odyssey. (Optional with first part of French or German.)
435	Bryn Mawr College, Bryn Mawr, Pa.	A. B.....	Requirements of Commission of New England Colleges are accepted. a	Latin: Gram.; comp.; sight translation of simple prose and poetry. Greek: Gram.; comp.; sight translation of Anabasis or Memorabilia and of Homer. (Optional with French or German.)
436	State Agricultural and Mechanical College, Auburn, Ala.	B. S	Gram.; comp.; Julius Cæsar; Merchant of Venice; Evangeline; Sketch Book; Marmion; Tom Brown at Rugby; David Copperfield; Ivanhoe; Southey's Life of Nelson; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton.	Latin: Gram.; Cæsar, 2 bks. (Optional.)
437	State Agricultural College, Fort Collins, Colo.	B. S	Gram.; analysis and comp.; American and English literature.	.....
438	State School of Mines, Golden, Colo.	Engineering.	Comp	.....
439	Georgia School of Technology, Atlanta, Ga.	B. S. in M. E.	Gram	.....

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram.; 6 of Böcher's College Plays; La Belle Nivernaise; Un Philosophe Sous Les Toits; Mlle. Solange; La Tulipe Noire; Le Conscrit de 1813. Or German: Gram.; comp.; Der Oberhof; Dichtung und Wahrheit; Minna von Barnhelm; Wilhelm Tell; Hermann und Dorothea; Die Journalisten. (Optional with Greek.) French; Gram.; Dosia; Le Roman d'un Jeune Homme Pauvre; La Belle Nivernaise; 3 of Böcher's College Plays. Or German: Elements of German Language (Schmitz I, II); Undine; Immensee; L'Arrabiata; Germelshausen; Soll und Haben.	Greek and Roman hist. to Roman Empire (Myers); American or English hist. (Johnston, Gardiner).	Algebra through quadratics; plane geometry (5 bks. of Chauvenet).	.....	434
French and German: Gram.; sight reading of prose and poetry. (Greek may be substituted for French or German.)	Hist. of Greece and Rome or hist. of England and the U. S.	Algebra through progressions; plane geometry.	Elements of one of the following: Physics (Gage); chemistry (Remsen); botany (Bessey); physiology (Martin); phys. geog. (Hinman).	435
....	U. S. hist	Arith.; algebra to quadratics.	Geog	436
.....	U. S. hist. (Montgomery).	Arith.; algebra (Olney).	Geog.; drawing	437
.....	.....	Arith.; el. algebra; geometry, 2 bks.	Geog	438
.....	U. S. hist	Algebra through fractions.	.....do	439

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
440	Armour Institute of Technology, Chicago, Ill.	Engineering courses.	Requirements of Commission of New England Colleges. *a*	
		Library economy.	Same as for engineering courses.	Latin: Gram.; Cæsar, 4 bks; Cicero, 6 orations; Virgil, 6 bks.
		Architecture.	do	
		General science.	do	
441	Purdue University, Lafayette, Ind.	B. S., B. M. E., and B. C. E.	Gram.; comp.; orthography.	
442	Rose Polytechnic Institute, Terre Haute, Ind.	B. S	Gram	
443	Iowa State Agricultural College, Ames, Iowa.	B. S., B. L., and engineering.	Gram.; orthography	
		Agriculture.	Same as above	
444	Kansas Agricultural College, Manhattan, Kans.	B. S	Gram.; spelling	
445	Maine State College, Orono, Me.	Engineering, chemical, agricultural, prep. medical and pharmacy.	Requirements of Commission of New England Colleges. *a*	
		Ph. B.	Same as above	Latin: Gram.; Cæsar, 4 bks.; Cicero, 6 orations; Virgil, Æneid and Eclogues; comp.
		Scientific	do	
446	Maryland Agricultural College, College Park, Md.	B. S	Gram	
447	Massachusetts Agricultural College, Amherst, Mass.	B. S	do	
448	Massachusetts Institute of Technology.	B. S	Requirements of Commission of New England Colleges. *a*	

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
German: Gram.; comp.; reader; Freytag's Die Journalisten; Toll; Bernhardt's Deutsche Novelletten; Heyse's L'Arrabiata.	Greek, Roman, and mediæval hist. or English and American hist. and civil government.	Algebra through binomial theorem; plane and solid geometry; plane trigonometry.	Gen. chemistry (Remsen's Briefer); qual. analysis of metals and acids; physics (Gage's Principles).	
German: Gram.; Beginner's Book (Van Daell and Schrakamp); Heyse's L'Arrabiata.	Greek, Roman, mediæval, English, and American hist. and civil government.	Algebra and geometry as for engineering courses.	Gen. chemistry; physics.	
French: Chardenal's Complete Course; Fontaine's Livre de Lecture et de Conversation; Le Conscrit.				440
French as for library economy course. Also: Gram.; Alphonse Daudet; comp. (Bronson); Marianne (Sand); 3 modern plays; Luquien's Popular Science; L'Abbé Constantin.	Greek, Roman, and mediæval hist.	Same as for engineering courses.	Same as for library economy course.	
French as for architecture or German as for engineering.	Same as for engineering courses.	....do....	Same as for engineering courses.	
....	U. S. hist....	Arith.; algebra through quadratics.	Descrip. geog....	441
....	....do....	Arith.; algebra through quadratics; plane geometry.	Geog....	443
....	....do....	Arith.; algebra through simple equations.	Geog.; physiology...	443
....	....do....	Arith....	Same as above....	
....	U. S. hist....	....do....	Geog....	444
....	....do....	Arith.; algebra; plane geometry, 5 bks.	Physiology; 2 of the following: Botany (Gray); el chemistry (Remsen); phys. geog.; physics (Gage).	445
French or German: Gram.; comp.; reading.	U. S. hist.; Rome (Allen).	Same as above....	Physiology....	
Same as above....	U. S. hist.; general, Roman, or English hist.	....do....	Same as for engineering courses.	
....	U. S. hist....	Arith.; algebra through fractions.	Political and phys. geog.	446
....	U. S. hist.; civil government.	Arith.; algebra through quadratics; geometry, 2 bks.	Geog.; physiology; phys. geog.	447
French or German: Gram.; comp.; ability to translate simple prose.	U. S. or ancient hist..	Algebra through quadratics; plane geometry, 5 bks.; advanced algebra or solid geometry.	....	448

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
449	Worcester Polytechnic Institute, Worcester, Mass.	B. S	Gram.; rhetoric; comp.; Milton's Paradise Lost, I and II; Vicar of Wakefield; Southey's Life of Nelson; Carlyle's Essay on Burns; Vision of Sir Launfal; House of Seven Gables; Macbeth; Burke's Speech on Conciliation with America; Flight of a Tartar Tribe.	
450	Michigan Agricultural College, Agricultural College, Mich.	B. S	Gram.; spelling	
451	Michigan Mining School, Houghton, Mich.	B. S. and E. M.	Comp. on some subject selected from physics or astronomy.	
452	Mississippi Agricultural and Mechanical College, Agricultural College, Miss.	B. S	Gram	
453	Alcorn Agricultural and Mechanical College, Westside, Miss.	B. S	Gram.; higher lessons; comp.	
454	Montana College of Agriculture and Mechanic Arts, Bozeman, Mont.		Gram.; comp.; literature (1 year's work); rhetoric; etymology and literature (1 year's work optional with Latin).	Latin: 2 years' work (optional with drawing, and 1 year's work in etymology and literature).
455	New Hampshire College of Agriculture and Mechanic Arts, Durham, N. H.	B. S	Requirements of Commission of New England Colleges. *a*	
456	Stevens Institute of Technology, Hoboken, N. J.	M. E	do	
457	New Mexico College of Agriculture and Mechanic Arts, Mesilla Park, N. Mex.	B. S	Gram.; comp.; el. rhetoric.	
458	New Mexico School of Mines, Socorro, N. Mex.	B. S., C. E., and E. M.	Gram.; logic (Jevons)	
459	Thomas S. Clarkson School of Technology, Potsdam, N. Y.	B. S	Requirements of Commission of New England Colleges. *a*	
460	Rensselaer Polytechnic Institute, Troy, N. Y.	B. S. and C. E.	Gram.; comp	
461	United States Military Academy, West Point, N. Y.		Reading; writing; spelling; gram.	
462	North Carolina College of Agriculture and Mechanic Arts, Raleigh, N. C.	B. S	Gram	
463	North Dakota Agricultural College, Fargo, N. Dak.	B. S	Gram.; comp	
464	Case School of Applied Science, Cleveland, Ohio.	B. S	Requirements of Commission of New England Colleges. *a*	
465	Oklahoma Agricultural College, Stillwater, Okla.	B. S	Gram	

a See page 458.

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
French: Gram.; Le Bourgeois Gentilhomme; Mérimée's Chronique de Regne de Charles IX; Corneille's Le Cid. Or German: Gram.; Immensee; Märchen; Maria Stuart.	U. S. hist. and civil government (Johnston).	Arith.; algebra through quadratics; plane and solid geometry.		449
	U. S. hist	Arith	Geog	450
		Algebra through quadratics; plane, solid, and spherical geometry.	Bookkeeping; commercial law; physics; el. astronomy.	451
	U. S. hist	Arith	Geog	452
	U. S. hist.; hist. of Mississippi; civil government.	Arith.; algebra	Physiology; phys. geog.; el. chemistry; drawing.	453
	U. S. hist	Arith.; algebra; geometry.	Geog.; physiology; botany; physics; chemistry; drawing (optional with Latin).	454
	American hist	Arith.; algebra to quadratics; plane geometry.	Polit. and phys. geog.; physiology.	455
	American hist. (Fiske or Montgomery).	Arith.; algebra through quadratics; plane, solid, and spherical geometry; analytical trigonometry.	Physics (Deschanel, Part I); chemistry to carbonic oxide (Roscoe's Elementary).	456
	U. S. hist	Arith.; el. algebra through quadratics.	Geog.; hygiene	457
Spanish: Gram.; reader (Worman); comp.: De Tornos's Combined Spanish Method.	Gen. hist. (Freeman).	Arith.; algebra (Olney's University); plane trigonometry; mechanics (Magnus).	Drawing; chemistry (Freer's Elements); bookkeeping.	458
French: Whitney's Practical French Grammar.	U. S. hist. (Fiske)	Arith.; algebra through quadratics; plane geometry, 5 bks.		459
		Arith.; algebra through quadratics; plane geometry, 5 bks.	Geog	460
	U. S. hist	Arith	do	461
	State hist	Arith. through fractions.	do	462
	U. S. hist.; gen. hist.; civil government.	Arith.; el. algebra	Geog.; phys. geog.	463
German: Gram.; reader; Immensee; Andersen's Bilderbuch ohne Bilder. Or French: Gram.; Super's Reader, 3 parts; 100 pp. of prose. (Optional with higher algebra and trigonometry.)	U. S. hist	Arith.; algebra through quadratics; plane, solid, and spherical geometry. Higher algebra and plane and spherical trigonometry (optional with French or German).	El. chemistry (Remsen); physics (Avery).	464
	do	Arith	Geog.; physiology; phys. geog.	465

Requirements for admission to the freshman class of

	Institution.	Course.	English language.	Classical languages.
466	Oregon State Agricultural College, Corvallis, Oreg.	B. S., B. S. A., B. M. E., B. H. E.	Gram.; reading; spelling	
467	Friends' Polytechnic Institute, Salem, Oreg.	B. S	Gram	
468	College of Agriculture and Mechanic Arts, Kingston, R. I.	B. S	Gram.; comp.; Hawthorne's Wonder Book; Dickens's Christmas Carols; Sketch Book; Lady of the Lake; Evangeline.	
469	Clemson Agricultural College, Clemson College, S. C.		Gram. (Whitney-Lockwood).	
470	South Dakota Agricultural College, Brookings, S. Dak.	B. S	Gram.; reading; spelling	
471	Agricultural and Mechanical College of Texas, College Station, Tex.	B. S	El. gram. and comp	
472	Agricultural College of Utah, Logan, Utah.	B. S	Gram.; reading; spelling; writing.	
473	Virginia Military Institute, Lexington, Va.	B. S	Gram	
474	State Agricultural and Mechanical College, Blacksburg, Va.	B. S	do	
475	Washington Agricultural College, Pullman, Wash.		Gram.; comp.; rhetoric; House of Seven Gables; Snow Bound; Merchant of Venice; Macaulay's Essay on Byron.	

universities, colleges, and schools of technology—Continued.

Modern languages.	History.	Mathematics.	Science.	
.....	U. S. hist	Arith	Geog	466
.....	.....do	Arith.; algebra through simple equations.	Physiology; phys. geog.; zoology.	467
.....	.....do	Arith	Geog	468
.....	.....do	Arith.; el. algebra	.....do	469
.....	.....	Arith.; el. algebra through simple equations.	.....do	470
.....	.....	Arith. to percentage.	.....do	471
.....	U. S. hist. (Barnes) ...	Arith. (Harper's Second Book).	.....do	472
.....	U. S. hist	Arith.; algebra to quadratics.	.....do	473
.....	U. S. hist.; hist. of Virginia.	.....do	Phys. geog	474
.....	Gen. hist.; civil government.	Arith.; algebra through quadratics; plane geometry.	Physics or chemistry; el. botany or zoology.	475

CHAPTER XII.

THE LEGAL RIGHTS OF CHILDREN.[1]

(*a*) The growth of civilization and the reign of law, marked by the protection of children from unnatural parents—The patria potestas of the Roman—The interference of the Roman law to protect the orphan from the "familia"—The efforts of the early church to mitigate the right of the father to kill his child—The emancipation of the child at 21 among Anglo-Saxon communities suggested to have been nourished if not engendered by the feudal system, which made the serf or vassal swear fealty to the lord of the manor or district who then represented the State, and also to the complete absorption of the old religious functions of the pater familias by the new religious father or priest.

(*b*) The slum districts and their juvenile inhabitants—Their numbers—Nationality—Illiterate parents—Schooling—Employments—Dwelling places—The wages of the parents and the duration of enforced idleness.

(*c*) Decisions of the higher courts—The right of an individual not directly benefited to interfere with taxation for school purposes—The indissoluble unity of taxation and the illegality of attempts to segregate the body politic in classes differentiated by political or other opinion—The meaning of the term common or public school as distinguished from the meaning of any term used to designate a school which is "open and free to all," but not controlled by the State.

(*d*) Preliminary tabulation of the sources of income and the origin of the permanent school funds in the several States.

It is convenient, when discussing the status of facts which are in process of change, to invite a comprehension of the import of this change by attempting to show the true origin of the facts, or by assuming as true an origin which is, in reality, merely an historic possibility or hypothesis. Such an origin, whether true or assumed, is the point of reference which gives vitality to the argument, as the base line in surveying gives subsequent utility to the records of the survey.

As the primitive herds of human beings, it may be assumed, emerged from the promiscuity of savagery,[2] the organization of the family, both

[1] By Mr. Wellford Addis, specialist in the Bureau.

[2] Mr. McLennan's view in his "Patriarchal Theory," in which he opposes the "primitive" agnatistic theory, i. e., the patriarchal theory. See the criticism of his theory by Sir H. S. Maine, in Early Law and Custom, chap. VII.

in China and in Europe, appears in a form which in itself, though not in its antecedents, is susceptible of some degree of verification. Thus a very positive expression as to the total absence of legal rights of children is made in the Institutes of Justinian. "The power we Romans have over our children," say the compilers of the Institutes, "is peculiar to the citizens of Rome, for the men of no other nation have such control over children as we have over ours."[1] And again: "Our children who are begotten in lawful marriage are in our power" (in potestate nostra). In China, likewise, "Every person is in strict subjugation to somebody. The child is subject to his parents or guardian. They in turn are subject to their parents, and the grandparents may be called to account by the elders of the clan."[2] The patria potestas, the rule of the father, still exists in China, and with it a nation which passes in European literature for an illustration of a stable but an unimproving society. On the other hand, the patria potestas of the Roman in the hands of the Germanic and Celtic races of Europe has undergone and is undergoing fundamental changes; for the father, as a priest, owner, and judge is being entirely submerged in the conception of the parent as a protector or guardian influenced by natural affection and not by mercenary motives.

Originally, then, during the regal and republican periods of Rome, neither age, nor marriage, nor election to the highest public office, nor anything except emancipation terminated the power of the Roman pater familias over his son or his son's son, and the daughter passed on her wedding day into the power of her husband or his governor as though she, too, were a child. But the growing refinements of the age which welcomed Christianity in spite of the opposition of the government—the essence of government being conservatism—mitigated the terrors of the paternal power of life or death as gauged by the standard of the ethics of the twentieth century. The pagan Emperor Diocletian had forbidden the sale of children by their parents, but the first Christian Emperor, Constantine, struck the destroyer of his own child with the crime of infanticide. Further than that the law did not go, and it was only by the exertion and devotion of a new class of persons in the community—a class which had acquired the religious functions of the father of the Roman family, that is to say, the priests or religious fathers—that even so much as had been formerly ordained by Constantine could be realized.

What the pagan Roman emperors could not effect, owing to the impregnable organization of the Roman family of the regal, repub-

[1] Jus autem potestatis quod in liberos habemus, proprium est civium Romanorum: nulli enim alii sunt homines, qui talem in liberos habeant potestatem, qualem nos habemus. Lib. 1, Tit. 9.

[2] When I was a Boy in China. Yon Phon Lee. Mr. Lee was one of 120 boys sent by his Government to be educated in America, after a preparatory course in China.

lican, and early imperial epochs, was nevertheless put in process of change for future civilizations by that rationalizing machine called the Roman law. During the times of the so-called kings of Rome, when the father died, his children—under the age of 15 if boys, and of 12 if girls—were placed in the hands of the nearest male relative as a matter of personal right.[1] In those early times the state had nothing to do with this substitution of the relative for the deceased parent. That was a right pertaining to the family (familia) organization, and it was the family that interposed between the parties concerned.[2] Other than this interference the ward or, as he was called, the "pupil" had no recourse against his guardian (tutor), just as formerly he had had none against his father.[3] But extension of business relations, warfare, and growing emancipation from the idea of the tribal organization probably made the interference of the council of family groups related by blood ineffective, and the law—that is, the state in its character of preventing injustice—took the matter in hand. First, the right of a particular kind of lawsuit, called "actio de distrahendis rationibus" (adjustment of accounts), was instituted as the form in which the ward might ask for an accounting from his guardian, and this was followed by the creation of another special action called "tutelæ" which seems to have been intended to supplement the suit for misuse of the ward's money (actio distrahendis rationibus) and to make the guardian responsible for letting his ward's property lie idle or otherwise neglecting his duty as tutor or guardian. The point is that in Roman law this actio directa tutelæ is separated from the general action or suit which may be made in every advanced system of law against trustees of any kind for their acts of omission as well as those of commission.[4]

Thus the State deliberately and, it may be added hesitatingly, interfered between the guardian and the ward and, through its judicial

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[1] As long as the "primitive" family group held together it was under the guidance of the eldest male of the eldest line, and the amount of power possessed by this patriarch is shown to us in case of Roman heads of families. But the patriarch always tended to become merely a judge who decided causes in accordance with custom. So, likewise, his position as ruler of the family property changed, of which he began to be the steward rather than the owner. Starke, the Primitive Family, Aryan Peoples, p. 97; Sir H. S. Maine, Ancient Law; J. D. Mayne, Hindu Law and Usage, and W. E. Hearn, the Aryan Household.

[2] James Muirhead, LL.D., professor of civil law, University of Edinburgh, in his work appearing as an "article" in Encyclopædia Britannica, under title of "Roman law," p. 673.

[3] Cf. Sir H. S. Maine's dictum (Ancient Law, 3d Amer. ed., p. 155): "The guardianship of male orphans was no more designed originally to shield them till the arrival of years of discretion than the tutelage of women was intended to protect that sex against its own feebleness." The condition to which the later Roman law came is given below in the text, quoting Servius as quoted by Paulus.

[4] Cf. Kent's Comm., vol. 2, pp. 230-1, 13th ed., and De la protection des impuberes sui juris, dans l'ancien droit romain, par Paul Varnier.

officers or the judicial side of its administrative officers, indirectly laid the foundation of a far more social conception of parentage than the rigor of the pater-familias theory of the old city state allowed;[1] for this progress being made it was not difficult to apply to the father Servius's definition of guardianship, which may be stated as the power given by the civil law to protect a child who, on account of his age, is not able to defend himself. (Vis ac potestas in capite libro ad tuendum eum, qui propter aetatem sua sponte se defendere nequit, juri civili data ac permissa.)

In speaking of the patria potestas in the foregoing no retrospective construction has been placed on the motives which actuated the so-called democracies, tyrannies, or respublicas of antiquity to leave the supreme power of life and death over offspring in the hands of the progenitor. It has been said that it was not the father, as a mere breeding animal, who was recognized by the Roman law as he in whom the patria potestas found a realization, but the father as the politically responsible part of the family. It has also been said that the main social idea of the society of Greece and of Rome was quite stoical, being a haughty preference for honor (virtus) while we moderns prefer comfort (utilitas). But it is doubtful whether either of these judgments upon antiquity find confirmation outside the classic pages of M. Fustel Coulange's[1] La Cité Antique and Plutarch's Lives and the like. The Memorabilia of Xenophon, Cicero's Letters, Horace's Epistles, and the Meditations of the Emperor Marcus Aurelius certainly impress the reader that he is being made acquainted with familiar characters as he turns over the pages of those writers who wrote candidly of their contemporaries or themselves, and the De Officiis was neither the handbook nor the model of Tiberius, Nero, or Sejanus, nor of the society they ruled.

The second blow to the Roman idea of the complete supremacy of

[1] La Cité Antique, by Monsieur Fustel de Coulanges, who has taken an advanced position among those who favor the patria potestas theory of the Roman society. If we turn to the condition of affairs among the pagan or pre-Muhammadan Arabians it is learned that, "Whatever amount of external protection this custom (the blood feud) may have afforded, it had no tendency to shield the women and children of a family against the male adults; the impulses of natural affection were too often unequally matched against the suggestions of avarice, lust, superstition, and false pride; and thus we find among the usages revealed to us through their subsequent condemnation the following: The plundering of male orphans by their brothers, uncles, or cousins, the general denial of rights of inheritance, if not all rights of property, to females, the enforced marriage of female orphans to their nearest male relative other than a brother, and of widows to the father, son, or brother of the deceased husband, or, as an alternative, their sale to a strange suitor, the sale of daughters in marriage, or in families where this had come to be thought disgraceful." (Rudiments of Law in pre-Islamite Arabia, by Sir R. K. Wilson in introduction to Anglo-Muhammadan (in India) Law, page 9.)

the father of the family was, in Europe, the loss of his function as the priest of the family. The third and most important one was the complete emancipation of the offspring on its attaining an age fixed by the state. Whence the idea of emancipation at the age of 21 came is unknown. It is thought to be Germanic in its origin, for the provinces of France that retained the Roman (i. e., the written law) preserved a remnant of the patria potestas while the provinces having the "customs" of their ancestors, or, as the English race say, common law, liberated the child on his becoming of age.[1] In France during the Revolution, the patria potestas was abolished after the child had become of age; but there is another side to it there, which is the duty of the parent to support the child. Even to-day, "in all but the poorest classes of the French people, marriage is made more difficult by inveterate family traditions. These center in a moral principle, which, perhaps, never existed in the Anglo-Saxon conscience. This tradition is that a parent is bound to protect and provide for his offspring through the whole course of his life."[2]

Be the matter as it may, there can be no error in turning to England, for there we find not only the common law and the feudal tenure built upon military service, which was due to a lord by the youth on reaching the age of 21, but also the earliest emancipation of the serfs or farm persons who cultivated the soil and intimately connected therewith the first direct interference with the right of the emancipated peasant or yeoman to neglect to make his child a decent member of society.

The reign of Henry VIII is memorable for the removal of mediæval restrictions. During its course some 2,500 religious houses were brutally but effectually eradicated, and nearly 100,000 dependents thereon thrown upon the country; the monopoly of the local conspiracies "to restrict the buying and selling of the goods" in each little city in which the guild merchant or one or more trade guilds dwelt was ruthlessly broken up; serfdom, already weak, collapsed under the new system of sheep farming, and the country was filled with beggars.[3] In short,

[1] From the Jus feudale Allemanicum (and Schwäbisches Lehensrechtsbuch) Cap 50. Tempus pubertatis est XIII annorum, et sex septimanarum a die nativitatis. Si Dominius minorem investiturus non aliter vult, tenentur agnati curatorem illi dare, qui respondit Domino nomine minoris in judicis feudali, et defendat ubi opus fuerit. Curator defendere debet minorem usque ad annum aetatis XXI et Domini ejusdem vassallus esse debet. (If the feudal lord does not otherwise determine as to a minor his agnates are held to appoint a curator to him, who is responsible in feudal law to the lord in the minor's name, and protects him, when necessary, until the age of 21 years. The curator must be a vassal of the same lord.

[2] Stoddard Dewey in Westminster Review, December, 1896. A daughter has always her "dot," and the French law recognizes the family council.

[3] They were then called sturdy [able-bodied] beggars; now they are called abnormal men.

by the confiscation of the monasteries alone, one-third of the wealth of England changed hands and the whole country was on a boom. Population, towns, commerce, and beggars rapidly increased.

In the twenty-seventh year of the reign of Henry VIII an act was passed which required that children between 5 and 13 found begging or idle should be bound apprentices to some handicraft. The apprenticeship law was compulsory upon master and servant alike; for the reception of an apprentice was not voluntary to the master.[1] This system has been called an education theory, and as such, says Mr. Froude, was simple but effective. "It was based on the single principle that next to the knowledge of a man's duty to God, and as a means toward doing that duty, the first condition of a worthy life was the ability to maintain it in independence. Varieties of inapplicable knowledge might be good but they were not essential; such knowledge might be left to the leisure of after years, or it might be dispensed with altogether without vital injury."

The children of those who could afford the small entrance fees were apprenticed to trades, the rest were apprenticed to agriculture, and if children were found growing up idle and their father or friends failed to prove that they were able to secure them an ultimate maintenance, the mayors in towns and the magistrates in the country had authority to take possession of such children and apprentice them as they saw fit, that when they grew up they might not be drawn by want or incapacity to dishonest courses.[2]

The origin of one part of the Puritan acts of 1642–7 is at once apparent. By those acts the selectmen of every town were directed by the legislature to do two things, one of which was to suffer no such barbarism as illiteracy. This part of the Puritan legislation was religious and original. But the selectmen were also instructed to see that all parents and masters "do breed and bring up their children and apprentices in some honest, lawful calling, labor, or employment, either in husbandry or some other trade profitable for themselves and the Commonwealth, if they will not or can not train them up in learning to fit them for higher employment." The originality of the Puritan laws therefore, consists in adding to the compulsory apprenticeship the obligation of parents to instruct their children in the fundamental branches of an English education in order to prevent, to quote the language of one act, "the snares of that old deluder, Satan." It will therefore be necessary to supplement Mr. Froude's laudation of the compulsory apprenticeship law drawn by Henry VIII with the

[1] State and Education, Henry Craik, M. A., LL. D., London, 1884. Also Froude History England, vol. 1, chap. 1.

[2] Such are the remarks of Mr. Froude on the "education of the poor" under the act of the twenty-seventh year of Henry VIII (Chap. XXV), Histy. England, vol. 1, p. 59. New York edition.

words of Mr. Webster in his Plymouth Rock oration: "We [the people of New England] regard education at public expense as a wise and liberal system of police by which property and life and the peace of society are secured and the whole moral atmosphere is purified."

Yet mere lawmaking will not accomplish results. Each one is very willing to have society interfere to protect himself from other people, but is impatient of social interference to prevent him from doing whatever he likes to others. Formerly the State in England issued its commands with astonishing frequency to local bodies to do this or that act of petty interference. The whole matter is now reversed. "We English," says Mr. Traill, "are infinitely more governed though less legislated at than our ancestors. It seems proper that the State—the government by the people—should not wish to be ridiculous by merely commanding the citizen to do certain things, but should see that he does it, and our English legislators are continually acting or being solicited to act on the assumption that it is their duty to take care of the public intelligence and the public health."[1]

The conception of the introduction and social effects of an epidemic of cholera or yellow fever is sufficiently vivid as not to require illustration, but the manner of introducing an idea into society and its effect is not so apparent. To explain this process Mr. Tarde has rejuvenated the association of ideas theory in the guise of the laws of imitation[2] or propagation of an idea through the crowd, and it seems important to dwell upon his exposition, though merely the scientific statement of what every politician and cultured person knows.

In his book Mr. Tarde calls his work a study in sociology, and properly so; for it is with society that he is dealing. He is not concerned with the psychology of the individual as such, but with the psychology of the individual as a member of society. This is the fundamental presupposition of the whole book; for it is evident that there can be no imitation in a society composed of a single person. The work is therefore an essay on what the Germans Lazarus and Steinthal called Völkerpsychologie, as it treats of the effects arising from a large body of persons holding in common one language and the same ideas. Society, according to M. Tarde, is an organism made up not

[1] Central government. It is to be added that the State and Federal powers assured by the Constitution make the use of the word "state" a little ambiguous in this connection, unless it be remembered that all the powers not granted to Congress are reserved to the States, and that the Supreme Court settles disputed cases.

[2] Les lois de l'imitation, étude sociologique, par G. Tarde, Paris, 1890; also, La logique sociale, 1896. In addition, there are many works of the same nature: Dumont's De population et civilization; Le Bon's Evolution psychologique des peuples and Psychologie des foules (Psychology of the crowd); Lacombe, Histoire comme science, etc.

of similar molecules as is the atmosphere, nor of similar cells as are living bodies, but is an organism made up of similar ideas which have been disseminated among the crowd by a process which in its psychological aspect may be called imitation, and in its physical may be called repetition. This process of imitation or repetition is analogous to other processes in the universe, to name them: The vibration of the ether which results in the phenomena of light and sound, the transmission of the characteristics of the progenitor in the process called heredity, and even the spread of a disease such as the epidemic called the black death during the Middle Ages. Firmly fixed, this conception of a society as a self-conservating spiritual organism soon disposes of the Aristotelian idea of a division of labor and the social contract and the communistic ideas. Society is not a thing of to-day, not a conscious convention of its members, not an exchange of mutual services, but a nexus of ideas similarly held into which new ideas are being constantly injected by invention and disseminated by imitation, or, to say the same thing in other words, by being repeated over and over again in each one of a multitude of units. This manner of regarding society as a body of similar ideas gives it a mechanical cast. For in order to change society (that is to say, a body of similar ideas held by a multitude) a sufficient time must elapse before the new ideas necessary to produce the change can be sufficiently disseminated to be effective. Thus every law passed by a State runs the risk of making but feeble inroad upon the body of ideas held by the people if some general interest or danger does not promote its observance; but it must be noted that under the press of successful revolution or of apprehension of great and immediate evil, reforms go to extremes and presage anarchy, Cæsarism, and a new society.

Before proceeding to examine the efforts made in England and elsewhere in the line of introducing new ideas as to the employment and education of children, it is advisable to state the conditions under which such interference by the State is thought to be necessary. Let us therefore examine the—

II: SOCIAL ENVIRONMENT OF CHILDREN IN THE SLUMS OF CITIES.[1]

There is no subject upon which it is so easy to be sentimental as the reformation of the depraved. It is a topic which never wearies the reader, and therefore one particularly dangerous to the writer. In the following exposition the social conditions of the actually depraved and, so to speak, merely degraded poor will be presented statistically and then the figures commented on as briefly as is consistent with an attempt to point their meaning.

[1] The statistics of this section are, though somewhat rearranged and recomputed taken from the elaborate work of the Hon. Carroll D. Wright, U. S. Commissioner of Labor, being obtained by his specialists in pursuance of an act of Congress.

In the four great cities below mentioned the census takers of 1890 and the special investigators of the United States Department of Labor in 1893 found the following facts:

1.—*Population.*

City.	Of cities, 1890.	Of slums (estimated).	Of special slum district examined in 1890 and 1893.	
			1890.	1893.
Baltimore	434,439	25,000	16,878	*a* 18,048
Chicago	1,099,850	162,000	17,637	*b* 19,748
New York	1,515,301	300,000	27,462	28,996
Philadelphia	1,046,964	35,000	15,409	17,060
Total	4,096,554	582,000	77,386	83,852

a Three per cent were negroes. *b* Four per cent were negroes.

Here are four millions of people, many more than the Republic contained when the Constitution was adopted with its preamble beginning, "We, the people of the United States, in order to form a more perfect union, establish justice, and insure domestic tranquillity," etc. Among these four millions of city dwellers are found 14 persons in every 100 separated socially from the other 86 by characteristics sufficiently obvious to entitle the section in which they dwell to a distinctive name, "the slums," just as the congregation of moneyed persons is called the "west end," and the like. A certain portion of these slums in the four cities combined increased its population during a period of three years to the figure of 8 per cent, so that the slums are not decreasing. The question is immediately suggested, Are these people Americans? Have they had the advantages of the public schools? Let us see.

2.—*Nativity (of slum districts examined in 1893).*

City.	Population of slum district (1893).		Population of whole city (1890).	
	Born in United States.	Born outside United States.	Born in United States.	Born outside United States.
In every 100 persons there were in—				
Baltimore	59.79	40.21	84.12	15.88
Chicago	42.49	57.51	59.02	40.98
New York	37.42	62.58	57.77	42.23
Philadelphia	39.55	60.45	74.26	25.75

That the population of the slums is largely a product of immigration there can be no doubt. Sixteen persons in every 100 of the population of Baltimore are immigrants, but over 40 persons, almost three times as many, in every 100 in the slum district are immigrants. Nor is this a full expression of the contribution of the immigrant

population to the slum district, as their children born upon American soil are counted as Americans. Having found that the immigrant population furnishes possibly as much as two-thirds of the slum population of a certain typical district of each of the three largest cities of the United States, we may now examine into the literary attainments of the population over 10 years of age.

3.—*Illiteracy (number above 10 years of age unable to read and write in any language living in slum districts examined).*

Illiterates.	Baltimore.		Chicago.		New York.		Philadelphia.	
	Actual number.	Relative or true number for comparison in each 100.	Actual number.	Relative or true number for comparison in each 100.	Actual number.	Relative or true number for comparison in each 100.	Actual number.	Relative or true number for comparison in each 100.
Born—								
In United States	531	a 8.13	252	b 5.64	340	7.20	262	8.44
Outside United States	2,083	30.62	3,514	33.86	9,728	57.69	4,340	46.61
Living in slum district as compared with the population of the slum district	.....	a 19.02	.....	25.37	.....	46.05	.....	37.07
Living in whole city as compared with population of the whole city	.....	9.79	.....	4.63	.....	7.69	.....	4.69

a Three per cent of the slum population are negroes.
b Four per cent of slum population are negroes.

It is quite apparent that one-fourth to one-half of the immigrant population can not read or write even in their mother tongue. It is also evident that illiteracy is, in the slum districts of the three larger cities, six or seven times greater than in the whole city, including, of course, all the slums. Certain statistical refinements might be made upon this table, but as the object here is merely to show the social condition of the slums in its grand lines we pass to the consideration of the schooling received by—

4.—*Children 5 to 14 years of age (16,803 all told, of whom 13,298 were of wholly immigrant parentage) for the four cities before considered.*

Parents born—	Kept at home.		At work.		At school.		At school and work.		Total (see footnote a).	
	Actual number.	Comparative number.	Actual number.	Comparative number.	Actual number.	Comparative number.	Actual number.	Comparative number.	Actual number.	Comparative number.
		Per ct.		*Per ct.*		*Per ct.*		*Per ct.*		*Per ct.*
In United States	559	a 24.8	80	3.5	1,604	71.1	12	0.5	2,255	b 13.4
Outside United States	3,124	23.5	988	7.4	9,083	67.9	153	1.1	13,298	79.1
Father in United States	120	28.3	13	3	291	68.6	0	.0	424	2.5
Mother in United States	180	.....	27	.....	616	.....	3	.....	826	4.9
Total	3,983	c 23.7	1,108	6.6	11,544	68.7	168	.1	16,803	100

a Note that if this percentage had been written out it would have read: "In every 100 children whose parents were Americans (2,255 in all) 24.8 were kept at home." To take the percentage on the whole number of children 5 to 14 (16,803) would be unjust to the foreign population, or, to put it properly, inaccurate.

b This would read, if written out: "13.4 children in every 100 had American parents."

c This line of percentages has nothing to do with parentage, but in the case to which this footnote is applicable would read: "23.7 children of the 16,803 in the slum district of the four cities were kept at home;" and so for each following percentage.

It is quite clearly shown that the children of the slum districts go to school on arriving at the age of 6 or 7. Only six or seven children 5 to 14 in every 100 of the 16,803 children between those ages are at work, at least were so reported. The number of children kept at home, not counting the 11,122 under 5, is slightly in favor of the slum family having an American-born father, who in the city is the most indulgent father in this respect in the world, either through affection or neglect. But there is quite a difference between the American and the immigrant father in the other columns of the table, though in making this remark it is essential to add that 84 per cent of the 16,803 children spoken of in the table have immigrant fathers and only 16 per cent American fathers; for statistics is a science of large numbers, and numbers so small as 80 or 1,600 are rather inadequate for comparative purposes.

It might be expected that the general unhygienic conditions of the slums would cause a diminution in the size of the family living therein. That such is not the case is quite well shown by the following table:

5.—*Average size of family in slum districts.*

City.	Among slum population.	Whole population of city.
Baltimore	4.48	5.01
Chicago	5.09	4.99
New York	4.90	4.84
Philadelphia	5.15	5.10

It appears that the slums are more prolific in children than the whole city taken together. In Baltimore, in whose slum district the

native American population is one-half larger than the immigrant, the slum family is much smaller than the family for the whole city. In the four cities there were 11,122 children under 5 years of age born in the United States and 1,088 born abroad. In the same districts there were 10,484 children 5 to 14 born in the United States and 5,955 born abroad; in all, 29,013 children under 15 years of age. We may then divide the population of the slums examined in the four cities (83,852) into two bodies—those under and those above the age of puberty, respectively 29,013 and 54,839 persons. Thus it follows that there were nearly two persons 15 years or over for every child below that age. The daily home life and, in general, the environment of these 29,000 children is a matter of some importance, and we are led to consider another class of facts.

6.—*Pay, hours of labor, and period of enforced idleness of persons over 15 years engaged in remunerative occupations, as far as reported, during the year ending March, 1893.*

Sex.	Remuneration by week while employed.						Hours of labor a week.		Unemployed for three months.	
	Under $5.		$5 to $10.		$10 or more.		Selected number of workers reporting.	Average a week.	Number over 15 years of age.	Per cent of whole body reporting remuneration.
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.				
Men	2,177	9.2	11,403	48.2	10,060	42.6	a 24,823	a 61	9,905	32.5
Women	3,809	56	2,604	38.3	385	5.7	b 5,428	62		

a This figure does not include 2,238 workers not reported for the three classes of workers represented in the column: to wit: "Domestic and personal service," "trade and transportation," and "manufactures and mechanical industries." These three vocations, including the 2,238 from whom no report was obtained, give employment to 94 per cent of the male population of the slums.

b Not including 625 women workers not reported as to their hours of labor; 78.5 per cent of the women workers were following the vocations mentioned in note a above.

The workers of the slums have long hours, and if their daily task requires unremitting attention they are longer than modern ideas tolerate. It may be said, however, that of the three groups of vocations represented in the table—domestic and personal service, trade and transportation, and manufactures and mechanical industries—that manufacturing and mechanical shopwork are much the lowest in point of hours of labor providing Sunday be for each group a day of rest.

But the difficulty is that in every year one-third of the working population—at least one-third of the 30,438 who report their remuneration—are unemployed for three months or more. A merely living wage, together with instability of employment, is the microbe that, in an atmosphere saturated with illiteracy and indecency, breeds the city disease called slums, and the question is whether the ordinary amount and kind of education will suffice to overcome its effects

upon the infant character. The dwelling place, the home of the slum child, is susceptible of some degree of illustration by the following table:

7.—*Character of the slum home as shown by the amount of rent paid.*

By the week.	Baltimore.		Philadelphia.		Chicago.		New York.	
	Number such rents.	Per cent.	Number such rents.	Per cent.	Number such rents.	Per cent.	Number such rents.	Per cent.
Under $1	1,170	35.99	298	9.86	87	2.44	84	1.50
$1 to $2	1,342	41.28	1,123	37.17	1,247	34.91	2,036	36.47
$2 to $3	336	10.34	639	21.15	1,151	32.22	1,775	31.80
$3 to $4	171	5.26	308	10.20	428	11.98	994	17.81
Over $4	232	7.13	653	21.62	659	18.45	693	12.42

It will be noticed that the four cities may be separated into two classes according to the rents shown in the above table, namely, a class in which the slum population pay, in a large number of instances, a rent of under $2, and a class in which the larger number of rents paid is from $1 to $3.

Thus in Baltimore a little over three-fourths of the "homes" are rented for a figure under $2; in Chicago only a little over one-third are rented at those figures. Baltimore and Philadelphia are what may be called cheap cities. For instance, in Baltimore 13 per cent of the salaries (men) are under $5 and 50 per cent between $5 and $10, whereas in Chicago, the slum districts of which has a larger negro population than Baltimore, 5.5 per cent of the men receive wages under $5 a week and 42 per cent between $5 and $10. It is evident that more can be done with a dollar in procuring shelter of some kind in Baltimore than Chicago. But the question is, What is the duty of a dollar in affording its relative part toward maintaining its owner and his family in a respectable lodging? It is said that in Germany a man of small income ($200 or thereabout) will spend about one-sixth of it for his lodging; the proportion is said to be one-eighth; but, after all, the value of a dollar depends very much upon the character of the person who has it to spend.

The life of the slum dweller, then, is not so destitute of conveniences as the possible derivation of the word from asylum, or place of refuge for vagabonds and thieves, might indicate.[1] He is poor, and his work is intermittent; these are the great evils of his existence. He lacks the idea of permanency of every kind, save his empty stomach and pocket. He is off and on compelled to beg, starve, or to eke out enough from his poor wages while working to carry him through the time when he is unemployed. His reliance upon his own exertions is interfered with by intervals of enforced idleness, during which he is compelled to solicit employment like a beggar asking for alms, and which, as alms, is frequently given him. This tends to cause him to

[1] Cf. Scott's novel, The Fortunes of Nigel., The Alsatia, "both a grim and grimy place," the refuge for cutthroats, renegades, and the like.

feel like a slave, alternately to truckle and snarl. He becomes a peculiar kind of character in the body politic, upon which he floats at random, strong in body but weak in principles, especially the principle of conservatism, the champion of revolt and the client of the demagogue. It is evident that self-protection warrants a State in striving to prevent such barbarism that many thousands of children should be reared under these conditions.

III: THE OBLIGATION TO ATTEND SCHOOL; OR, COMPULSORY ATTENDANCE.

In the preceding matter of this chapter it has been assumed that the efforts of the Christian priests to break down the pagan practice of exposing children was successful, and now to the great reforming and protesting monk Martin Luther must be ascribed the first demand for compulsory attendance at school. "I consider the magistrate," he says, "bound to compel the citizens (burghers) to send their children to school; for if it is proper for the State to compel its citizens to take up arms in time of war, much more proper is it for her, both from a sense of right and duty, to make them send their children to school." Bugenhagen, the pastor of Wittenberg, went further. At the christening of the infant the father was sworn to instruct his children in the elements of learning. In short, the education of the people was a cardinal doctrine of the Protestant movement of the sixteenth century. Those who led it understood the "laws of imitation" as advanced by M. Tarde. The War of Thirty Years, those of Louis XIV, the Seven Years' War of Frederic of Prussia, and the Napoleonic wars put off the realization of compulsory education in Germany until 1817, when a department of public worship, medical affairs, and education was created. By this department a most comprehensive "entwurf" or bill was prepared, entitled "Allgemeinen Gesetzes über die Verfassung des Schulwesens im Preussischen Staate" (General provisions regarding the government of the school system of the states of Prussia). By this "all parents and guardians are obliged either to use the common public schools for the instruction of their children or wards or to provide them with an equally good means of obtaining such instruction." The Catholic bishops took a decided stand against the bill (as a whole), claiming that what the State had granted to them as an act of grace was not as much as the Catholic Church claimed as a right under the canon law, the platform of the Council of Trent,[1] the Peace of Westphalia,[2]

[1] A congress called to settle the questions threatening the disintegration of the Catholic Church, the procedure of which resembled that of a modern congress or parliament in which dicta are prepared by committees and then submitted to the whole house. Owing to the failure of the reformers to accept the promise of safe conduct, the body was composed of 187 Italian delegates, more than half.—Article Trent, Council of, in Catholic Dictionary, by Rev. W. E. Addis and Mr. Thomas Arnold.

[2] The treaty which put an end to the Thirty Years' Religious War.

and the decisions of the Imperial Deputies in 1803, by which all school matters were made causa ecclesiastica.

The bill never passed the stage of being a "sketch of a law," but compulsory education was steadily introduced by the power of Prussian bureaucratic government until its school system became so complete as to excite the wonder of Messrs. Guizot and Cousin[1] in 1833 and of Mr. Horace Mann several years later.

A powerful auxiliary and probably the necessary precursor of any compulsory school law is a law forbidding the complete monopolization of the years of childhood in labor for the benefit of the parent. In some cases this barbarism is, it is claimed, a necessity; but the recognition of such necessity gives rise to a cloud of spurious cases. The civil law embodied in the Code Napoleon compels the parent to support the child, and in several American States the statutes have laid down the same rule. Under such circumstances the head of the family as a political person is not apt to be so hostile to having the child educated, even though he regard the child as a mere encumbrance naturally following the gratification of his sexual instincts. In 1839 the Prussian Government forbid the employment of children under 9 years of age in any factory or mining establishment, nor might any person under 16 years who had not attended school three years or more and who could not read or write be so employed. It is quite possible to believe that there is no illiteracy in Germany.

In England it is necessary to make law in a different way. Not a public bureau, but public conscience must be aroused. In 1837 Mr. Dickens wrote his novel of Oliver Twist. There is a scene in that picturing the magistrates as refusing to indenture the boy, Twist, as a chimney sweep to a man plying that vocation. In 1840 there is also a "chimney sweepers and chimneys regulation act." By that act every indenture of apprenticeship to "any person using the trade or business of a chimney sweeper" is null and void if the child be under 16 years of age. In 1867 this was supplemented by the act with the bizarre title of "The agricultural gangs act," by which it is enacted that "whereas in certain counties in England certain persons known as gangmasters hire children, young persons, and women, with a view to contracting with farmers and others for the execution on their lands of various kinds of agricultural work. Be it enacted, (1) That no child under the age of 10 years shall be employed in any agricultural gang. (2) No females shall be employed in the same gang with males. (3) No female shall be employed in any gang under any licensed male gangmaster unless a female licensed to act as gangmaster

[1] Cousin's report is well known to American readers in translation by Miss Austin. The French law of 1833 carried through by the government of Guizot was the first for France. Napoleon and the mathematician Monge had laughed at Pastalozzi in 1803, when that worthy was a Swiss deputy at Paris. His system, as is well known, was eagerly caught at in Prussia after the downfall of Napoleon.

is also present with that gang;" and the justices were empowered to limit the distances within which the children were to travel on foot. In 1873 no child over 8 years of age could be employed in agricultural work unless proving that the child, if under 10, had attended school 250 times, and if over 10, had attended school 150 times, during the preceding year. In 1878 the factory and workshop act was passed, preventing the employment of children under 10 or on Sunday, and regulating the attendance at school of children legally employed in factories. In 1866 an industrial school act was passed, so comprehensive in its scope and minute in its details, and, withal, so controverted as an efficient machine that it must be passed with a mere reference.[1] By the "custody of children act," 1891, it is laid down that where the parent of a child applies to the high court or the court of sessions for a writ or order for the production of the child, and the court is of opinion that the parent has abandoned or deserted the child, or that he has otherwise so conducted himself that the court should refuse to enforce his right to the custody of the child, the court may, in its discretion, decline to issue the writ or make the order.

In France the civil code of the first Empire defined the power of the parents to be "a right founded upon nature and confirmed by the law which gives to the father and the mother, during a certain limited time and under certain conditions, the surveillance of the body (personne) and the administration and enjoyment of the property (biens) of their children. In 1875 a reconstruction of French society was begun by the Republic by attacking the gross ignorance and superstition of the peasantry and the fatal self-complacency of the provincial bourgeoisie and of the people who dwelt in the city of Paris. Free public schools, or "gratuité," compulsory attendance, or "obligation," nonsectarian teachers, or "laicité," and finally the loss of control of his child by the unworthy father, "La déchéance de la puissance paternelle," followed in regular order as fast as the Government found itself strong enough to cope with the opponents—royalists, imperialists, and sectarians—that its audacious plan of campaign encouraged to open resistance.

In the United States the enfranchisement of several millions of negroes gave rise to much examination of the question of illiteracy during the ratification of the fourteenth amendment to the Federal Constitution. Illiteracy had never been so frequent among the people of the Northern States as to create alarm. The situation in the new South was anxiously considered, and a national bureau was created to collect and disseminate information upon the topic of education. The census of 1870 opened up unpleasant vistas of popu-

[1] Some mention is made of these schools at page 426 of volume 1 of 1888-89 report of this Bureau. Several royal commissions have discussed their merits in voluminous reports.

lar ignorance which the census of 1880 defined. In the manufacturing States of the North a new danger menaced popular government. The growth of the factory system and the influx of illiterate foreigners called for resolute measures. The difficulty was magnified by the attempt to set up a rival system to the State at the expense of the State. At the present day State after State is adopting compulsory-attendance laws, which give great offense to those who see in such measures not the safety but the destruction of popular government and to those whose particular interests are not forwarded by such laws.

The compulsory school attendance laws have passed through one and have entered upon a second stage. In the earlier stage, each law was a mere brutum fulmen, incapable of anything save needlessly to create strife. A compulsory-attendance law requires two factors: Agents and seating capacity to carry it out. These desiderata seem to have been the cause of the failure of the early school laws, which were practically merely expressions of opinion as to what the local school bodies should do in the premises. In the other, or second stage, which is now coming into being, the laws are less bland, less general. A school is defined, the English language is to be taught, private schools are open to inspection as far as their attendance is concerned, officers are appointed to carry out the law, and the employment of children is regulated or forbidden. Much, therefore, depends upon the courts. A summary of their conclusions in the past is now given.

CONTRIBUTORY NEGLIGENCE ON THE PART OF THE STATE.

It was a maxim of the Roman law that each must bear the burden of his own faults (Quod quis ex culpa sua damnum sentit, non intelligitur damnum sentire).[1] This is morally true of States as well as legally true of men and corporations. The errors of the parents should not heedlessly be left to be visited upon a future citizen. For if in the organization of a State and the course of the industries it fosters opportunities are given for harm to happen to the child, the culpability of the State is that of the railroad corporation against whom it was decided by the Supreme Court of the United States that it had been guilty of contributory negligence in placing a machine in a place where children would probably resort to it and meddle with it, as the child injured had done. The brief of this decision reads as follows, quoting the court:[2]

1. While it is a general rule in regard to an adult that to entitle him to recover damages for an injury resulting from the fault or negligence of another he must himself have been free from fault, such is not the rule in regard to an infant of

[1] Digest 50, 27, De diversis regulis juris antiqui, par. 203, Pomponius ad Mucium.

[2] 17 Wall., 657. In the case of Gardner *vs.* Grace, an English nisi prius case, Mr. Baron (Justice) Channell probably first laid down this "dictum" against the "spirit of the decided cases."

tender years. The care and caution required of a child is according to his maturity and capacity only, and this is to be determined in each case by the circumstances of that case.

THE RIGHT OF THE STATE TO EXCULPATE ITSELF.

In the matter of Donohue et al., in New York, Mr. Justice Westbrook remarks:

The right of the State to care for its children has always and with very great propriety been exercised. Under its laws, whenever the welfare of the child has demanded, its courts have frequently interfered for the protection of children of tender years. It has again and again taken them from one parent and given them to the other, or has refused so to do, the good and the welfare of the child being the object always in view. It has so acted without the intervention of a jury, and that power has never been supposed to have been improperly exercised because a jury was not allowed and due process of law not had. If the courts of the State may, by virtue of their general powers, interfere for the protection and care of children, it is not seen why the legislature may not prescribe the cases in which children shall be rescued from their custodians and a mode provided for their summary disposition. For example, if children should be placed to learn the business of stealing, could not the legislature provide a summary remedy for the evil? Has the law no power to rescue summarily female children held for the purposes of prostitution or interfere in an expeditious manner in very many cases when children of tender years are exposed to peril or temptation? (*Cf.* the English act page 630.)

THE UNITY OF GENERAL OR PUBLIC LEGISLATION IN THE UNITED STATES.

In his Digest of Anglo-Muhammadan Law[1] Sir R. K. Wilson observes that a task such as his should have to be performed in England by an Englishman who has only once casually visited India is doubtless an anomaly, but it is accounted for, like so many others, by the one huge anomaly of the government of 250,000,000 Asiatics from the banks of the Thames. "'Mahommedan Law compiled from authorities in the original Arabic' by a descendant (Syed Ameer Ali) of the prophet and an ardent defender of the Moslem faith is, he continues, one thing, my 'Anglo-Muhammadan Law' quite another thing. For Mr. Ameer Ali, the eloquent author of The Spirit of Islam, to have made a perfectly colorless and pedantically accurate law book in his 'Mahommedan Law, compiled from authorities in the original Arabic,'[2] would have been little short of a miracle, and in his case the miracle has not happened. It is my business to direct attention simply and solely

[1] A Digest of Anglo-Muhammadan Law, setting forth in the form of a code, with full reference to modern and ancient authorities, the special rules now applicable to Muhammadans as such by the civil courts of British India, by Sir Roland Knyvet Wilson, Bart., M. A., LL. M., barrister at law, fourteen years a reader in Indian Law to the University of Cambridge. London, 1895, preface.

[2] The second edition, revised, appears to bear the title Mahommedan Law, by Hon. Syed (i. e., descendant of the Prophet Mahomet) Ameer Ali, C. J. E., barrister at law.

to what the British Government at the present time requires to be enforced as law for its Muhammadan subjects (about 40,000,000 of the 250,000,000), and for them alone." The necessary changes being made, Mr. Herbert Cowell, in the preface to his "The Hindu Law, as administered exclusively to Hindus (140,000,000) by the British courts in India," could have made exactly the same remarks as those just quoted from Sir Roland Wilson's preface and any Anglican writer who should attempt to digest what is meted out as law to the Buddhist subjects, of whom there are 3,000,000 owing nominal political allegiance to the Empress of India, might say the same. In short, while European law rests upon the people freely legislating to meet the demands of their own time, the Asiatic law rests upon ingenious commentations upon the utterances of holy men.[1] Any proposition, therefore, looking to the classification of children into sects by requiring a different set of officials, of tax lists, and a different method of treatment is a political evil that the Preamble of the Federal Constitution points as dangerous legislation. Efforts have been made, however, to make such distinctions as will appear from the matter now given:

In Louisiana a municipal corporation passed an ordinance allowing goods to be sold on Sunday by a number of citizens who believe, upon historical grounds, that Sunday comes on Saturday, while other citizens who believe that Sunday is the day of rest were prohibited from enjoying the privilege of keeping their stores open both on Saturday and Sunday: Held by the supreme court[2] to be partial legislation, and therefore unconstitutional.

In Kentucky, one of the States where the negro's aboriginal ignorance and century of involuntary servitude, together with the bitterness arising from a long and sanguinary conflict, made it desirable to educate that race apart from the Caucasian race, the Federal court held (1873) that a law was unconstitutional and void because it directed that the tax collected from white persons for support of public schools should be used exclusively for schools for that race and that the tax collected for colored persons should be reserved exclusively for schools for that race.[3] The supreme court of North Carolina, in Pruitt *v.* Commissioners of Gaston County (1886), took the same grounds.[4]

Indeed, this principle has been carried (leaving out of consideration its fundamental importance to a democracy) to an amusing length. In California, in the case of Lin Sing *v.* Washburn (20 Cal., 534), it was held that an ordinance of the city of San Francisco was void

[1] Cf. An Introduction to the Study of Anglo-Muhammadan Law, by Sir R. K. Wilson, Bart., London, 1894, pp. 3–6.

[2] Shreveport *v.* Levy, 26 La. Ann., 671.

[3] Federal Reporter, vol. 16, p. 297, Claybrook and others *v.* City of Owensboro and others, district court, D. Ken., 1883.

[4] 94 N. C., 709.

because in requiring every inmate of the county jail to have his hair cut to within 1 inch of his scalp there was an intent to show dislike of Mongolian persons. In a Maryland case, where a police regulation declared that "no black Republican" should be employed by the police board, the supreme court of the State refused to take cognizance of such distinctions as being unworthy of notice, and in another State, where the affidavits of three "unconditional Union men" were required to remand a case of changed venue, the court disdainfully swept the distinction aside as invidious and therefore unconstitutional. In conclusion, it may be said that when for some physical characteristic or a peculiar belief a part of the community become notoriously segregated for a sufficient length of time, the isolated part or caste indubitably incur the dislike of the larger part of the community, and are only protected by the law and the respectful though sometimes distasteful obedience all true citizens accord it.

POWER OF THE STATE TO TAX FOR SCHOOL PURPOSES.

It is admitted, says Chief Justice Marshall, in one of those decisions which have put vitality into the idea of Federal Government both at home and in Europe, and causes the author to bear the same relations to the constitutional law of the United States that Lord Mansfield bore to the commercial law of England,[1] it is admitted that the power of taxing the people and their property is essential to the very existence of government, and may be legitimately exercised on the objects to which it is applicable to the utmost extent to which the Government may choose to carry it. The only security against the abuse of this power, he continues, is found in the structure of the Government itself. In imposing a tax the legislature acts upon its constituents. This is in general a sufficient security against erroneous and oppressive taxation.[2] The only consistent argument against this power of the State to tax a childless citizen for the education of other people's children is that of Mr. Herbert Spencer in his Coming Slavery. "English legislators," says the philosopher of the unknowable, "who in 1833 voted £20,000 a year to aid in building schoolhouses, never supposed that the step they then took would lead to forced contributions, local and general, now amounting to £6,000,000. They did not intend to establish the principle that A should be made responsible for educating B's offspring." The ready answer to which is that had they known as much in 1833 as they knew in 1885 they, as men over 21 years of age and competent to judge, probably would have begun with £6,000,000 instead of the grant of an amount that is bequeathed by half a dozen American testators to single institutions in the course

[1] "He framed the commercial code of his country."—Lord Campbell's Lives of the Chief Justices of England. "He was the founder of the commercial law of the country."—Justice Buller.

[2] M'Culloch *v.* The State of Maryland (4 Wheaton, 316–437, March 7, 1819).

of a year; for a national education is a national drill, irrespective of the amount of the individual profit the cadet may derive from it, as has been remarked by the Puritan and Jesuit fathers and M. Tarde in his work on Imitation. National education may not make savants, but it softens the brutality of the asperities produced by failure or success through the operation of the most powerful and persistent lien in human nature, that of childhood recollections.

To what degree the State shall provide for the education of the people at public expense is a matter to be determined by the legislature, subject to such limitations as may have been introduced by the people of the several States in the State constitutions. An examination of these constitutions shows considerable variation in the provision made for education. The people of Pennsylvania in 1873 ordered their legislature to "provide for the maintenance and support of a thorough, efficient, and nonsectarian system of schools," and also to "appropriate not less than $1,000,000 annually for that purpose," while the people of Texas in 1876 ordered their legislature "to make suitable provision for the support and maintenance of an efficient system of public free nonsectarian schools," but in another part of the instrument, in limiting the right of the legislature to tax, they express themselves thus:

> The legislature shall not have the right to levy taxes or impose burdens upon the people, except to raise revenue sufficient for the economical administration of the government, in which may be included the following purposes: * * * The support of public schools, in which shall be included colleges and universities established by the State; and the maintenance and support of the Agricultural College of Texas.[1]

In default of judicial interpretation of the exact meaning of the provisions concerning education found in the constitutions of each of the States, as related to other parts of those instruments, it is necessary to refer to a compilation made in a former report of this Bureau.[1]

An early discussion in regard to the interpretation and meaning of the provisions of the constitution of the State of Pennsylvania is that of the Hon. Jeremiah S. Black, subsequently Attorney-General of the United States during Mr. Buchanan's Administration, while chief justice of the supreme court of Pennsylvania. That court, in 1851, was asked by one Hartman to be restored to the position of a school director in a certain district from which he and the other elected members of the board had been ousted by the court of quarter sessions of Lehigh County. These persons when elected had organized

[1] Documents illustrative of American Educational History, compiled and annotated by B. A. Hinsdale, Ph. D., LL. D., in Report 1892–93 of this Bureau. In Louisiana "The legislature can not force a parish [county] to levy a [local?] tax for school purposes" though "it may *authorize* it to do so," as the system of free public schools in Louisiana is a State institution, for which the State is required to provide by taxation or otherwise. 42 Ann.

themselves as a board and then refused both to establish the common schools required by the law under which they had been elected and to resign. The law (quite new) required schools to be established for "every individual 5 to 21 who cared to apply." The constitution only required the legislature to "provide schools throughout the State in such a manner that the poor may be taught gratis." Upon this very interesting and complicated issue the court said:

The whole ground on which this court has been urged to reverse the order of the quarter sessions is that the law is unconstitutional. We are of opinion that there is nothing in that law—certainly nothing in that part of it to which our attention has been particularly called—which in the slightest degree contravenes the constitution. It is to be remembered that the rule of interpretation for the State constitution differs totally from that which is applicable to the Constitution of the United States. The latter instrument must have a strict construction; the former a liberal one. * * * The powers not granted to the Government of the Union are withheld, but the State retains every attribute of authority which is not taken away. In applying this principle to the present case, it is enough to say that there is no syllable in the constitution of Pennsylvania which forbids the legislature to provide for a system of general education in any way which they in their own wisdom may think best. * * *

The constitution of Pennsylvania provides that "the legislature shall, as soon as conveniently may be, provide by law for the establishment of schools throughout the State in such a manner that the poor may be taught gratis. It seems to be believed that the last clause of this section is a limitation to the power of the legislature and that no law can be constitutional which looks to any other object than that of teaching the poor gratis. The error of these who make this argument consists in supposing this provision of the constitution to define the maximum of the legislative power, while in truth it only fixes the minimum. It enjoins them to do thus much, but does not forbid them to do more. If they stop short of that point, they fail in their duty; but it does not result from this that they have no authority to go beyond it.[1]

There is another interesting decision upon this point, though not in the proper sense a decision at law, but rather what in the Roman law might have been called a responsum prudentium.

On being requested, the supreme judicial court of Maine informed the house of representatives of the legislature of that State to this effect (abstract):

By the constitution of Maine (article 4) the legislature has "full power to make and establish all reasonable laws and regulations for the defense and benefit of the people of this State, not repugnant to this constitution nor to that of the United States." * * * Education being of benefit to the people and taxation being incidental to its successful promotion, a general tax for educational purposes must be constitutional unless forbidden or restricted by the constitution. The constitution, indeed, orders the legislature to require the towns to make, at their own expense, suitable provisions for the support and maintenance of public schools, but this is mandatory, not prohibitory.[2] (Cf. Black's decision above.)

Questions arise as to the power of the State to provide secondary and normal schools. A leading decision in this matter is that of Hon. Thomas M. Cooley, while one of the justices of the supreme court of

[1] Commonwealth v. Hartman, 17 Pa. (Dec., 1851).
[2] 68 Me., Appendix.

Michigan. In Stuart *v.* School District No. 1 of Kalamazoo (30 Mich.), it is laid down that school authorities in union school districts may levy taxes upon the general public for the support of high schools, and such taxation may be used for instruction in foreign languages, and that there is nothing in the educational State policy of Michigan or the State constitution restricting the primary school districts of the State in the branches of knowledge which their officers may cause to be taught or the grade of instruction that may be given, if the voters of the district consent, in regular form, to bear the expense and raise the tax for the purpose, or to prevent instruction in the classics and living modern languages in these schools.[1] Normal schools, as necessary to the full development of free schools, may be established by the legislature.[2]

THE SUZERAINTY OF THE STATE IN THE MANAGEMENT OF COMMON OR PUBLIC SCHOOLS.

Perhaps no more important decision touching the public character and hence the unity of the public schools has been made than that of the supreme judicial court of Massachusetts in the case of Rawson *v.* Spencer (1873). This issue, squarely stated, may be thus expressed: "Shall there be 1 or 1,834 or more centers of general educational control in the State of Massachusetts?" The opinion of the court was delivered by Mr. Justice Colt, and was directed and pointed by the following circumstances: The two laws of 1869 abolishing school districts in Massachusetts were contested by the original defendant as (1) confiscating property without just compensation, (2) as laying unequal taxes, and (3) as impairing the obligation of contracts,[3] upon which the court said:

> The laws in question were enacted in the legitimate exercise of that power by which the legislature may require the performance of certain public duties by different municipal agencies at its discretion. Before the enactment of these laws school districts were indeed quasi corporations, with the power to hold property, to raise money by taxation for the support of schools, and with certain defined public duties. But they were public and political as distinguished from private corporations, and their rights and powers were held at the will of the legislature, to be modified or abolished as public welfare might require. The laws in question do nothing more. They provide for the transfer of public property and of a public duty connected with its use from one public corporation to another. * * * There is no attempt to provide compensation in the sense in which compensation is required when private property is taken for public use under the right of eminent domain. The right here exercised is quite distinct from that and requires

[1] Richards *v.* Raymond (92 Ill.) is another decision to the same general effect.

[2] 4 Dillon.

[3] Under the laws of 1869, passed by the legislature of Massachusetts, the "Town of Uxbridge," a political division of that State containing several school districts, proceeded to take possession of all the property owned by such school districts, and to appraise the value of the same.

no provision for compensation. Nor do these laws authorize taxation which, under the bill of rights, must be regarded as not reasonable and proportional. The benefits to be enjoyed from public improvements and the use of public property can not be alike equal to all under any system. They are no more unequal under these laws than if districts had never existed or had not been abolished. The obligation of contracts is not impaired. Some of the districts may be in debt, but the rights of the creditors are in no way prejudiced. The taxpayers of the district are sufficiently protected by the assumption of all these debts by the town.

In an ingenious legal argument it was claimed in a Rhode Island case (St. Joseph's Church *v.* Assessors, 12 R. I.) that certain property belonging to that church but used for the purpose of maintaining a school free to all without charge was a public school and therefore not subject to taxation. The court would not entertain such a proposition and drew the distinction on the difference between free schools supported by the State for which it was answerable and the free schools of a system unfriendly to the State system and with which the State had very little if anything to do.

But though the judicial branch of the Government has steadfastly refused to allow the imperium of the State to be split up among the innumerable sects and faddists, which are inevitable in a government based on universal toleration and equality before the law, it is not to be understood that the personages whom the State calls into official being are thereby endowed with a temporary patent of dictatorship. Quite the contrary; it is Christian humility rather than pagan self-assertion that the courts require from public-school officers in the discharge of their duties. Nevertheless it must be confessed that the question turns on what is "reasonable." In a Wisconsin case (Morrow *v.* Wood, 35 Wis.) it appears from a case much complicated by the corporal punishment of a boy—now by the parent for studying what the rules of the school required, and now by the teacher for the boy's refusing to study what his father had punished him for studying—that a requirement to study geography is "unreasonable" if the parent in thinking so does not wish the authorities to introduce a new study for the parental benefit. On the other hand it has been laid down as "reasonable" that the power of the school committee to make all reasonable rules and regulations for the government, discipline, and management of public schools gave them the right to have the school opened with prayer and Bible reading notwithstanding certain parents claimed that these proceedings, during which their children are obliged to be at least physically present, are religious rites or ceremonies highly obnoxious to those parents for reasons satisfactory to themselves and their spiritual advisers. The first decision has been specially accepted as sound in an Illinois case (1877) and specifically repudiated (1879) as false in a New Hampshire case.

There are two great classes of these cases. One class is composed of those cases in which from some whimsical desire of the parent to

experiment or from some mental or moral bias an attempt is made to dislocate the routine of the schools by having this or that study of the established curriculum omitted for the parent's special benefit, while the other class is composed of cases in which it is attempted to have the atmosphere of the public school saturated as far as possible with the forms and usages of this or that particular creed. No general rule may be drawn from the cases decided except that in the North Atlantic States the courts have adhered to the idea of an undivided, impartial, and nonsectarian system of public schools in which no scholar is to be favored by the omission or addition of studies; for this would be practically, though indirectly, legalizing and supporting some particular kind of worship or some private business enterprise, as in the Wisconsin case above cited, where the father forbid the teacher to teach geography to his boy because he (the father) "wanted the boy to assist him to keep accounts."

NOTE A.—THE PRINCIPLE OF THE AMERICAN PUBLIC SCHOOL.

It is a propensity of the mind, as natural as it is frequently productive of error, to be guided by superficial resemblances. The more apparent these resemblances are, the more quickly an opinion is formed and the less inducement there is to seek or even to care for the deeper principles, though these, too, may lie quite near the surface, upon which the matter considered is based. For the American student of European education, considering such education as a department of government, a reflection of this kind is essential, for he must at the very outset of his investigations represent to himself the exact import of the term which M. Emile de Laveleye has used as a title to his book, L'instruction du Peuple. This instruction of the people has other names, such as popular instruction, but the common name given to it in the Latin countries of Europe is primary instruction, while in the Germanic parts of central Europe it is called Volkschulwesen, or the system of schools for the masses.

This species of education, or rather this education as applied to a specific portion of the population of a country, is intended for the common people or peasantry or lower orders, as the poor and uneducated inhabitants of the rural districts, especially, and the artisans and other wage earners of cities are invariably called. In Europe the original intention of modern attempts at educating these classes may be said to have been—paradoxical as it may appear—a reaction of at least one of the most humiliated monarchies of the Old World against the popular uprising known as the French Revolution, and the cry of emancipation raised by that revolution of "Liberty, fraternity, equality." But the appearance of paradox seems still more pronounced when it is considered that this very effort of a helpless monarchy to preserve itself from extinction should be apparently the same as that adopted by at least one republic in the new world to preserve its democratic institutions. Whether this indeed be a paradox merits investigation. A government is undoubtedly a government, whether in Europe or America, but a monarchy, though a government for the people, is neither a government by nor from the people.

Irrespective of the social status of the individual to whom given, the kind of education called in Europe "primary" or "popular" instruction has two characteristics which there distinguish it from all other systems of class education. The

first of these is that the schools are supported by taxation specifically laid upon the whole property of a community or a locality. The other characteristic is that such schools give instruction without cost to the pupil, except as far as his property or that of his parents or their labor is taxed to support the schools. These characteristics are in certain countries of Europe the outgrowth of a set purpose of their governments to strengthen the state by a process denominated national education, the keynote of which in Germany is the cry of Gott und Vaterland and in France is now La Patrie, though in the days of the French Revolution and the First Republic the cry was Liberté, Fraternité, Egalité, as before remarked.

The first system of national education was conceived and set on foot in the Kingdom of Prussia at the epoch of her greatest humiliation, during the Napoleonic wars. "We have hit upon the idea," says Stein, the head of Prussian political affairs, "that it is necessary to inspire the whole nation with a spirit of morality, of religion, and of patriotism." "We have lost a part of our territory," said the King, "and our renown as a nation is lost; but this is a reason why we should develop our intellectual power, and to this end I desire that everything shall be done to extend and render perfect the education of the people." It was the philosopher Fichte, however, who, in his addresses to the German people, first fostered the idea of a national as distinguished from a cosmopolitan idea of education. It is scarcely necessary to say that Fichte's scheme was preponderatingly ethical and national in character.

This "primary instruction" or "national education" is not regarded in Europe as in any way connected with culture. Mr. Matthew Arnold calls secondary instruction the first stage of a liberal education, and then goes on to say that Eton College (a secondary school), however defective otherwise, at least teaches her aristocratic pupils virtues which are among the best virtues of an aristocracy—freedom from affectation, manliness, a high spirit, and simplicity—and offers to her nonaristocratic pupils the benefits of contact with aristocracy, though at a too considerable outlay in money. Secondary education of this description is quite jealous, for the pupil is taken at a very early age by the authorities of the secondary school in which his education is to be effected, and whether in the "little college" of the French lycee or the progymnasium of the German gymnasium or in the lower forms of the English "public school" (Eton, Rugby, and the rest), he is carefully prepared for the liberal education of the secondary department proper of his school.

Such is the object of popular education as distinguished from aristocratic education in Europe. Turning to America, do we find the same conception of elementary education? There was a time during the first quarter of the present century when, inadvertently, through the anxiety of philanthropy rather than by premeditation, the people of the States of Pennsylvania, New Jersey, Maryland, Virginia, and South Carolina were classed as rich and poor. Mr. Hamilton, during his term as governor of South Carolina, is said to have expressed himself in regard to elementary public schools in the following terms: "The free-school system has failed. Its failure is owing to the fact that it does not suit our people, our government, or our institutions. The paupers for whose children it is intended need them at home to work." The same hostility of the native American "lower classes" to having their children marked as something of a lower order occurred in Pennsylvania, where the "poor-school system" was a most decided failure. Indeed, the principal motive that induces the parent to make sacrifices that his child may attend school is that it may become versed in the attainments that make

a lady or a gentleman. So widespread had this desire to be genteel become that to correct it some years ago a very determined effort was made to introduce into the public school curriculum instruction in the mechanic arts.

This, then, is the difference between the idea of the education of the masses of Europe and the idea prevailing in the education given by the public schools of the United States: In Europe the object is to absorb the individual in the contemplation of his duty to obey; in America the object is, to express the matter in the term used by one of our poets, Excelsior.[1]

[1] For the student of this phase of elementary and "high school" education, for they are inseparable in the United States, it is indispensable to familiarize himself with Theory of Education in the United States, prepared for the Vienna Exposition (Harris), and the article Etats Unis in Buisson's Dictionnaire de Pedagogie (Philbrick); for the administrative and financial side, the first section of the Report of the Committee of Twelve (Hinsdale); for the pedagogical side, the report of the subcommittee of five in the Report of the Committee of Fifteen (Harris), and also the Report of the Committee of Ten. A chapter published by this Bureau containing the provisions and expressions which occur in the constitution of each of the several States (Hinsdale) will serve as a sort of vade mecum in following the course of the education idea in the United States.

NOTE B.—*Tentative statement of the sources of revenue*

SECTION A.—STATE OR CENTRALIZED REVENUE, INCLUDING

Vested funds (or "permanent funds"), income only to be used.

Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
MAINE: Twenty townships of public school lands, the proceeds from the sale of those (and perhaps of other lands "assigned to towns for support of schools"), and the surplus of State taxation for school purposes form the permanent school fund, upon which the State pays 6 per cent, irrespective of the earnings of the fund.	Was given away per capita to local units, but $5,000 was set apart as a separate school fund, at 6 per cent, for the benefit of the territory then in dispute between the United States and the British Empire.	All surplus of the 1-mill State tax is added to "permanent school fund."
NEW HAMPSHIRE: None.....	The $700,000 received was distributed to the towns, some fifty of which seem to have kept the money, about $30,000, invested for school purposes, yielding about $1,800 annually.	None.....
VERMONT: None.....	Appropriated to towns for school or other purposes. The amount received was $669,087. The interest, at 6 per cent, was to be applied to support of schools. In 1885 it was found that "most of the towns apply the income to the support of schools."	The Huntington fund, amounting in 1892 to $212,000, upon which 6 per cent interest is paid. Vermont, it is said (Ann. Alm., 1846, p. 208, and 1847, p. 221) had a school fund; but it may have been merely an annual State appropriation.
MASSACHUSETTS: Sales of the Maine lands and subsequently one-half the proceeds of such sales.	The amount, $1,338,000, was given to towns. Of this sum about $25,000 were devoted by over one hundred towns to educational purposes.	The State permanent fund is made up of the proceeds of the sale of Maine lands, proceeds arising from the claims of the State on the United States for military service, war claims, and direct taxes. Refunding of Back Bay (Boston) lands and of the Western Railroad Corporation Stock. The fund is now nearly $4,000,000, and is increased annually by $100 000, until it reaches $5,000,000. The Todd fund of $12,000 is specifically for normal schools.
RHODE ISLAND: $4,276 received in 1858 from United States and was put to the credit of the United States surplus revenue.	The $382,000 received was originally devoted to education, and to it was added $4,276 from sale of public lands. The State borrowed all but $155,541, and then constituted that amount a permanent school fund, to which it subsequently added $11,192 surplus State revenue in 1860. The State pays no formal interest on this, which, at 6 per cent, would amount to $10,000.	None.....

for the support of public schools in each State.

AS SUCH TAXES LAID BY THE CENTRAL POWER.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
Tax on banks and one-half the tax on savings banks. Apparently the State normal schools are supported out of general revenue.	One mill on $1.....	None.
Taxes upon deposits, stock, accumulations of such depositors and stockholders of savings banks, trust companies, building and loan associations as do not reside in the State or whose residence is unknown shall constitute the literary fund. The surplus dog tax may be used for schools. Apparently the State normal schools are supported out of the general revenue.	The selectmen of each town are required to assess annually upon the polls and ratable real estate a tax to be computed at the rate of $500 for every dollar of the public taxes apportioned to that town.	See preceding column.
None. State normal schools, apparently, are supported out of general revenue.	Five cents on $1 of grand list (the poll tax and 1 per cent of the assessed value of real and personal property). The school districts shall annually assess not less than one-fifth nor more than one-half of the grand list.	
$100,000 is added annually to the permanent fund by act of June 16, 1894. By act of Apr. 11, 1895, $1,500 is given annually for an educational museum. County associations of teachers may draw $25 for every annual educational meeting. Apparently normal schools are supported by State from general revenue. Their buildings certainly are provided from general revenue. Up until 1895 the cost of such buildings has been $2,000,000.	.....	
Annual appropriation of $120,000 from out (1) the income of the permanent fund; (2) the general revenue, $3,100, is annually distributed to towns or districts for purchase of dictionaries, encyclopedias, maps, globes, etc., if districts raise double the sum they receive; an annual appropriation (amount not specified) for evening schools. The State Normal School is also apparently supported out of general revenue, as also the cost ($1,500) of transporting its pupils if they live 10 miles or more distant. $500 is appropriated for teachers' institutes and $300 for publishing educational literature. The surplus of the tax on dogs is to be used for school purposes, unless town or city otherwise determines.	None. (In every town there shall be kept for at least 6 months, etc., at the expense of the town, a sufficient number of schools in which, etc., etc. Cf. pp. 1088, 1089 of a Digest of School Laws published by this Bureau several years ago.)	$1 on voters (owning no taxable property), or so much of $1 as with their other tax shall amount to $1.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OR CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
CONNECTICUT: In 1733 the proceeds of the sale of "seven new townships" (one brought £6,800, another £1,225) in the colony were divided among the towns, as also in 1765 "certain sums due for excise on goods," the interest in both cases to be forever applied to the support of common schools. In relinquishing all claim to "Western lands" in 1782 Connecticut excepted the "Western reserve" as Georgia did the Indian lands within her borders (as related below), which, when sold in 1795, realized $1,200,000. By judicious investment this original sum had nearly doubled by 1840. The Western reserve contained 3,300,000 acres.	The amount received, $764,600, was deposited with towns, interest on one-half to be used for schools; interest on other half for ordinary local expenses. Practically three-fourths of the interest was used for schools until 1855, when the whole income was used for them. Some towns have wholly or partially lost the money.	None.
NEW YORK: In 1784 the "Stand lands" were laid off into blocks 10 miles square, subdivided into lots of 640 acres, one such lot in each block being reserved for promoting education and the gospel and another for promoting literature (1786). These formed the basis of the local school funds and of the State literary fund. Both funds received some increments by further land grants and the literary fund some for losses by grants in fee to specific institutions of "literary lots." The literary fund is now $284,201. In 1805 the common-school fund was established by the grant of 500,000 acres, the income from the proceeds of which was not to be distributed until the income reached $50,000. The fund is now $4,373,000.	The United States deposit fund is the original sum of $4,014,500. The "academies" get $30,000 for teachers' training classes and the school district libraries $55,000. The rest of the income apparently goes toward the payment of public-school teachers and some portion is added to the common-school fund.	None other than the increase of the common-school fund out of the "United States deposit fund."
NEW JERSEY: All money received from sale and rental of lands under water shall be a part of the permanent school fund.	The amount received, $764,671, was distributed among the counties as a trust. In 1867 the State required the whole income to be used for schools. In 1876 the income is $30,524. Probably there was not a county where the fund remained intact. Sixteen out of 21 counties set apart amounts equal to the interest that would have accrued if the fund had been at interest.	As a part of the permanent school fund shall be added as principal the interest of the bank or turnpike stock belonging to the fund, taxes on banking and insurance companies (after 1886), all appropriations made to fund, and all gifts.
PENNSYLVANIA: None	The $2,867,000 received was used for internal improvements to a large extent, though it is said that one-third of it was used to build up the school system then emerging from the "poor-school" régime.	None.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
For every person 4 to 16 years of age the State gives $1.50 to each "town" or "district," apparently out of the general revenue. The State pays $2.25 for each evening-school pupil certified to the State comptroller; source whence money is derived not mentioned. State treasury honors orders of State board to the amount of $80,000 for support of normal schools; also $3,000 for teachers' institutes (both apparently out of general revenue).	None, except as given in preceding column.	None, except that the "poll" is not a head, but value which the State places at $100, apparently as a capitalization of the right of citizenship, which is thus taxed as property by the towns or districts at a specified rate per cent.
None. Normal schools are apparently supported out of common-school fund incomes. Buildings and sites are provided by community amid which school is placed.	Such tax as the legislature may annually determine. ("Free school fund.")	None as far as known.
The State normal school, the teachers' institutes, free libraries, State's share in supporting technical education, all come out of the income of permanent fund, but if there be a deficit, it is said that other money in the treasury may be used to cover it.	Tax of $5 on realty and personalty for each child 5 to 18.	None.
Persons found drunk upon the thoroughfares and public places are fined $2, which shall be turned over to the school district. The legislature is required to appropriate annually at least $1,000,000 for the public schools. The State does not directly support the Pennsylvania normal schools, but pays students intending to teach 50 cents a week and a bonus of $50 on graduation. The source whence this money is derived is not known.	There are three kinds of tax for school purposes, each separate and distinct, but all may be due from one person: (1) The rate tax on real and personal property; (2) the rate tax on such trades, occupations, professions, and salaries and emoluments of office as will yield over $1 by the rate on its valuation; (3) a minimum occupation tax of $1 on all resident male taxables over 21 years of age whose assessed occupation at the rate levied for school purposes will not produce $1. (School Laws, No. 1.)	None specifically as such; but item 3 in the preceding column is apparently such a tax, being really the former tax on "single freemen" (1857) who had no occupation or calling, including widowers as single freemen. The old form seems to bear upon celibacy and idleness.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
DELAWARE: None	The $286,751 received by the State was invested with the proviso that interest was to be used for support of schools. By judicious management the fund is now about $350,000, in bona fide values, convertible into cash.	None
MARYLAND: None	Amount, $955,838, appears to have been absorbed (indirectly) by unsuccessful schemes of internal improvements, but the State turned over stock in the "Baltimore and Washington Railroad" yielding $51,059 annually, which is reserved to the (permanent) free-school fund.	In 1858 the State received $173,559, principal and interest, from the United States for advances made during the war of 1812, which debt had been made in 1825 a part of the free-school fund. (There is some difficulty in stating just by whom the free-school fund of Maryland is held. Some of it seems to be in the hands of the State; another portion appears to be in the hands of the counties.)
VIRGINIA: None, except as mentioned in the third column, "unappropriated lands."	Not devoted to education	In 1809 this State originated the "literary fund" by setting aside all escheats, penalties, and forfeitures for the encouragement of learning. These accumulations were increased in 1816 by the war debt due from the United States. This fund supported the "pauper schools of Virginia," Mr. Jefferson's plan for a State system being set aside for an optional county system. In 1870 this fund was, nominally at least, $1,877,000.
WEST VIRGINIA: Unappropriated lands and lands sold for taxes or otherwise forfeited.	Nothing received	The State's share of the literary fund of Virginia (when received?), estates without heirs, taxes levied upon revenues of a corporation, exemptions from military duty, and such sums as may be appropriated and such property as may be given to the State without conditions.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
Fees from marriage and tavern licenses, one-fourth of money derived from licensing auctioneers, foreign life-insurance agencies, the vending goods by samples, keeping traveling jacks or stallions, keeping eating house, taking photographs, acting as brokers, real-estate agency or exhibiting circuses, practicing jugglers, selling vinous, spirituous, or malt liquors, and one-fourth of fees on commissions issued to prothonotaries, clerks of the peace, recorders of deeds, clerks of orphans' courts, and sheriffs. Colored schools receive $9,000.	The school commissioners of each district must raise, without regard to vote of people, the following sums: In Kent County, $125; in Newcastle County, $150; in Sussex County, $75.	None.
Estates without heirs and escheats go to the county school board as coming from the State for school purposes. Normal school is supported from State tax. In 1812-13 a beginning was made in creating a free-school fund by taxing banks 20 cents on every $100 of capital stock. The war claims of 1812 and the surplus revenue (or its substitute, Baltimore and Ohio Railroad stock) were the other ingredients. It is doubtful if the 20-cent tax is still in force.	Tax of 10½ cents on $100 taxable property. This and the interest of the free-school fund are intended to pay teachers. See also second column of Section B for the contingency under which a tax is required.	None.
Escheats, forfeitures, fines for offenses against the State, and sale of unappropriated lands. Normal schools are supported out of general revenue.	Tax of 1 to 5 mills on the dollar.	$1 on each male 21 years of age.
See taxes levied upon corporations, etc., in preceding column. Normal schools are mainly supported out of general revenue.	10 cents on every $100 of real and personal property. Districts must levy a tax for building purposes not to exceed 40 cents on the $100 (which may be increased to 70 cents also if necessary to insure four months or other legal limit of school term), not more than 50 cents additional, and if a high school be kept, not less than 30 cents more, to provide buildings for and instruction in such high school.	$1 on every male of age.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	**Federal surplus revenue loan of 1836.**	**State accumulations "inviolably set apart."**
KENTUCKY: Some land was given for the purpose of education, but the proceeds were not devoted to an educational State fund.	Of the amount received, $1,433,754, $85,000 was "forever dedicated to public instruction," and was invested in "internal-improvement bonds." As the schemes of improvements were unfortunate, the State appears to have shouldered the debt and raised money to pay interest on it by taxation. See next column.	The 6 per cent interest on the bonds of Kentucky for $1,327,000; the dividends on 725 shares of the capital stock of the Bank of Kentucky ($73,500); $382,000 (accumulation of surplus of school revenue) due counties, at 6 per cent; $816,460 received from the United States Mar. 2, 1891; fines, forfeitures, and licenses in such proportion as the school tax bears to the whole State tax, excluding State school tax.
NORTH CAROLINA: In 1825 the proceeds from the sale of State and swamp lands, etc., and the unexpended balance of the agricultural fund were to be a part of the school fund. All proceeds from United States and swamp lands are now a part of that fund.	The $1,434,000 received was put mainly in the literary fund and probably was lost in the conflict of 1861-1865.	The sale of State and swamp lands, gifts and bequests of property for educational purposes, estrays, fines for breach of penal or military laws, and all the net proceeds of tax on retail liquor dealers and on auctioneers.
TENNESSEE: Congress gave one section in every township of public lands. In 1823 the State created a school fund by selling vacant lands and paid the money into the Bank of Tennessee, the school fund subsequently becoming a part of the capital of that bank, which part, in 1838, was limited to $1,500,000. The bank (a State institution) had a capital of $5,000,000, which was made up of the surplus revenue of 1836, the school fund, and additional sums to be borrowed. In 1865 the bank succumbed to the times.	The State received $1,433,758, but it was not apparently considered a part of the school fund, though some interest was used for education.	The State has issued a certificate of indebtedness for $1,500,000 and accumulated interest $1,012,500, upon which 6 per cent is annually paid. This is the permanent school fund.
SOUTH CAROLINA: None, as far known.	Devoted to general State purposes.	Land given by United States (if any), gifts for educational purposes, escheats, refunding of the direct-tax act of Congress, 1891, and the net assets or funds of all estates and copartnerships in the hands of the courts for seventy years, liquor licenses, except so much as is allotted to counties and municipal corporations (constitution, 1895).
GEORGIA: In 1783, 1,000 acres of land was voted to each county for the support of free schools, and in 1792 another 1,000 acres was granted to each county for a county academy. The State had reserved the right to the Indian lands within her borders when ceding her claims to the "Western lands" in 1782, the United States engaging to pay the Indians $1,200,000 for their lands.	The State received the $1,051,000 under protest, but added one-third of it to the "academic" and the "poor-school fund," both funds thereafter to be consolidated into the common-school fund. By the act of 1858, 6 per cent bonds for $350,000 were authorized and were issued during 1859 and 1860.	One-half the rental of the Western and Atlantic Rail road, liquor tax, show tax, Georgia Railroad stock, hire of convicts, fees of oil inspectors, poll tax, devices and gifts to the State, commutation tax for military service, all taxes on domestic animals as are harmful, lease of oyster beds.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
See preceding column as regards fines, etc. The colored normal school receives $3,000 from general revenue.	22 cents on each $100 of real and personal property and corporate franchises.	For fuel and other necessities, a capitation tax of $1.50 shall be levied by district trustees on patrons of schools if the district falls short in school funds for that purpose.
See preceding column as regards fines.	18 cents on every $100 of property and credits. If this and the capitation tax is insufficient to maintain school four months, the county commissioners shall levy a special tax, but not if the State, county, and district reach the limit of 66⅔ cents on $100 and $2 on the poll.	State, 54 cents; county, not to exceed $1.44; together, not to exceed $2.
To the permanent school fund may be added the proceeds of escheated property and lands forfeited or sold for taxes, personal effects of persons without heirs, and unconditional donations. Normal schools are supported out of general revenue.	1½ mills on $1 of all property subject to taxation. In case of insufficient funds to maintain school for five months, the county court shall levy an additional tax for the purpose of maintaining schools for that length of time or submit to the people the proposition to vote a sum sufficient to maintain school for a longer period than five months.	$1 on every male of age.
Normal school supported from general revenue.	3 mills on the $1 shall be levied by the counties. But after 1898 a tax shall be levied by the general assembly to keep the schools open for a period to be named by that body. If the poll tax does not yield $3 for each child in the public schools during 1896-97-98, the comptroller-general shall levy a tax to make up the deficit (constitution).	$1 on males 21 to 60 years of age.
The taxes and funds inviolable set apart in preceding column. It appears that the legislature makes a lump appropriation ($900,000 in 1894), which is a part of the school fund. The State normal school is a part of the University of Georgia.	No specific State tax.....	$1 on each poll, if used for school purposes.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.

Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
FLORIDA: The sixteenth-section lands for public schools amounted to 968,503 acres. In 1882 there were reported as yet unsold 650,000 acres (under acts of May 20, 1826; June 15, 1844, and February 26, 1857) and a school fund of $326,420, invested mostly in State bonds. To this, one-fourth of the proceeds from the sale of public lands now or hereafter owned by the State.	None received.....	Unspecified donations to the State, escheated property, and forfeitures.
ALABAMA: 902,774 acres were received in 1819 for common schools (sixteenth-section lands). Capitalizing the interest received on this fund in 1875 at 6 per cent, the fund may be theoretically placed at $2,449,000. Many of these lands are leased by the "township superintendents" and are sold by vote of township. There is much litigation about title between State and claimants.	The $669,000 received was deposited in the State Bank, and in 1840 the interest was to form a part of the $200,000 required of the bank to establish a system of public schools. In 1848 "it was considered doubtful whether the university and school funds and the surplus revenue would ever be realized on," as the bank had failed. (Amn. Almanac, 1848.) See next column.	The State recognizes the interest due on the surplus revenue at 4 per cent; also that due on the proceeds of public-land sales at 6 per cent.
MISSISSIPPI: There were 817,534 acres of sixteenth-section lands. These were distributed to townships, who now hold a permanent fund of $197,421, from which, with rents, they derived in 1895 $26,890. The Chickasaw land fund is held by the State and amounts to $854,583, with 30,000 acres of land; interest, $51,000.	Not used for education.....	The rate of interest on the Chickasaw school and other trusts funds for education shall remain fixed at 6 per cent as long as they are held by the State.
LOUISIANA: There were 786,044 acres of sixteenth-section lands which were converted into bonds and were at the date of 1872, 834 State bonds of $1,000, 35 State bonds of $500, 272 city bonds of $1,000—in all, $1,123,500. It appears that these bonds were sold in 1872, and an investigating committee of 1878 uses the expression, "The abolishment of the free-school fund in 1872." The rent of school lands in 1894 amounted $5,070, and the interest on sixteenth-section fund to $44,000.	The $477,900 was three-fourths appropriated to pay State debt. The constitution of 1852 accepted the whole amount as a debt due to free-school fund.	The land granted by the United States—past or to come—the trust fund of 1836, estates of deceased persons without heirs, and all lands granted for educational purposes or without condition is a loan upon which the State pays 6 per cent interest.
MISSOURI: There were 985,000 acres of sixteenth-section lands. In 1892 the school fund was made up of $2,909,000 State certificates at 6 per cent, $231,000 at 5 per cent. In addition, there was a "permanent county public-school fund" of $3,783,539, a "permanent township public-school fund" of $3,370,369, and a "permanent district public-school fund" of $59,407. The proceeds from the sixteenth-section lands (permanent county public-school fund) seem to include the land sold for the benefit of the permanent township-school fund. Swamp land seems to have been given to the school fund, as the State board in 1879 was directed "to look into what the counties had done with them." These lands amounted to 3,300,000 acres.	The $382,335 were set apart for support of common schools, and the interest, at 6 per cent, was to accumulate until the amount became $500,000.	All money, stocks, bonds, lands, and other property belonging to any State fund for education, the net proceeds of the State tobacco warehouse, escheats, proceeds of public lands granted by Congress, and unconditioned gifts or bequests. The county permanent fund shall receive the proceeds of fines and forfeitures and exemptions from military duty.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
The normal schools are, it is thought, supported out of general revenue.	1 mill on the $1, and every county is required to assess not less than 3 nor more than 5 mills.	None mandatory; but if levied by county, must be used for schools.
Escheats, licenses required to be paid into county school fund, $350,000 from general revenue, and $1,000 to be set apart for a contingent fund. State normals receive from $2,500 to $7,500 from State treasurer.	None specifically	Poll tax not less than $1.50.
A lump sum annually ($700,000 in 1895) to support schools four months. Normal schools are apparently supported out of general revenue.	do	Not to exceed $2 on all male persons 21 to 60 years of age. Such tax to be entirely devoted to support of public schools.
All fines by district courts and forfeited bonds in criminal cases (minus commissions), except parish of Orleans (New Orleans). Normal schools are apparently supported from general revenue. There is a corporation tax of $319,000 for educational purposes the exact functioning of which is unknown.	The legislature fixes (rate of) tax annually.	From $1 to $1.50 on males over 21. The tax is now $1.
Tobacco warehouse, etc., in preceding column. Not less than 25 per cent of the ordinary revenue of the State is set apart for public schools. Normal schools receive aid from State.	Not to exceed 40 cents on the $100 of valuation, except that in cities and towns it may be increased by vote to $1 on $100 and in districts to 65 cents. The amount may also be increased for building purposes, if two-thirds of the qualified voters so determine.	None.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
TEXAS: The Republic of Texas gave 17,713 acres (a Spanish league) to each county for "primary" and secondary education, which were not to be sold for twenty years. This, with other grants, gives a total of about 40,000,000 acres. In 1895 the leased lands yielded $177,438.	Nothing received.....	From $3,000,000 to $5,000,000 in bonds given in 1855–56. From these land and bond grants the permanent school fund amounts to about $22,000,000. This sum and about 17,500,000 acres of unsold school lands form the perpetual fund, which in 1895 yielded $1,295,377. This interest and such taxes as the State levies are the "available school fund," to which the legislature may add 1 per cent or less of the "permanent school fund." One-fourth of the occupation taxes is also added by the constitution to the fund for public schools.
ARKANSAS: The 886,460 acres of sixteenth-section lands were sold by each township, which then loaned the proceeds. The whole fund was broken up in the troublous times of the civil war. See for State lands in the third column of this heading.	The amount received, $286,751, was at first used generally. In 1842 the residue ($9,163) was made a part of the fund for public schools.	All money, stocks, bonds, lands, and other property now belonging to any fund for purposes of education, escheats, estrays, proceeds of sale of public lands given by Congress, 10 per cent of all State lands, also all grants, gifts, or devises to the State unconditionally, shall be preserved as a public fund called the common school fund.
OHIO: The 704,488 acres of sixteenth-section lands, 25,640 acres of swamp lands, 24,216 acres of salt-spring lands form a source of a fund upon which the State guarantees an interest of 6 per cent. The unsold lands of the sixteenth-section category produced, in 1895, $61,374 in the shape of rent. It appears that the sixteenth-section lands form a "common-school fund," and the salt-spring lands a "general fund," the first belongs to the township, while the second "belongs to the people of Ohio in common." (Law of March 2, 1831.)	The $2,007,000 was distributed to counties to be loaned to internal improvement companies, and the interest up to 5 per cent was to go to schools. Finally the act of March 24, 1851, added the "balance of the surplus-revenue fund" to the "common-school fund" (sixteenth-section lands).	In 1895 the income of the irreducible school fund was $251,569, of which $61,374 was farm rents of sixteenth section lands. The State guarantees 6 per cent on fund derived from land.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
See preceding column for occupation taxes. State normals apparently supported by general revenue.	18 cents annually after 1805...	$1 on men 21 to 60 years of age.
None.....	Not more than 2 mills on the dollar.	$1 on men over 21 years.
None specified, but apparently a very large sum is annually derived from "fines, licenses, etc." The pedagogic department of the State University is supported from general revenue.	The legislature shall fix a rate of taxation at least once in every two years, and if in any year it fail to to do so it shall be 1 mill on the $1 of valuation. The proceeds shall be "The State common-school fund." Boards of education shall levy a tax not to exceed 3½ mills in cities of the first grade of the first class, and 1 mill additional for every 5,000 pupils over and above 25,000 enrolled in the public schools up to 7½ mills. In other districts the levy shall not exceed 7 mills. "In counties containing a city of the first grade of the first class, in districts outside such a city in which a high school is maintained, and in all special and village districts the levy shall not exceed 8 mills." This local tax, limited and required by the State, is called "contingent fund," and is used for continuing school after the State appropriation has been exhausted, and for buildings, textbooks, etc.	None.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
INDIANA: The 650,317 sixteenth-section acres received from the Congressional township fund, amounting to $2,502,000 in 1803, not including 196,600 acres unsold, yielding $35,208 in the shape of rent. The county auditor manages these funds. This fund was consolidated with the common-school fund in 1852, but was separated, as courts decided that the fund belonged particularly to the inhabitants of each Congressional township (36 square miles). In addition to the sixteenth-section lands 1,252,708 acres of swamp and 23,000 acres of salt lands have been received. The proceeds from the sale of these swamp and salt lands is given to the common-school fund.	The amount received was $990,254. Two-thirds was invested in internal improvements and one-third put in stock of State bank. The former part is supposed to have been lost. The bank stock, on the other hand, "eventually doubled." This would appear to be about $560,000, which became a part of the "school fund" which is held by counties, and amounts to $7,521,226.	The common-school fund is augmented by the bank-tax fund, the income from the State bank, fines assessed for breaches of the penal laws, all forfeitures, escheats, lands granted to the State unconditionally, and taxes laid on corporations for common-school purposes; also, surplus dog tax over $50 and liquor licenses.
ILLINOIS: There were received as sixteenth-section land 985,000 acres. The proceeds of these constitute the township fund, which now is $12,221,000, which earns 4.93 per cent interest. Three per cent of the proceeds of the sale of United States public lands in the State are also given, but one-sixth of this 3 per cent is set apart for higher education. Upon the proceeds of the 3 per cent given by the Federal Government the State pays 6 per cent and is called the school fund. It is now $613,362. There are 6,038 acres unsold school lands, whose value has been included in sixteenth-section lands above.	There were received $813,592, of which $478,000 were invested in internal improvements and $335,592 were placed in the school fund and then borrowed by the State and upon which it now pays 6 per cent interest.	None. There is a county fund of $158,617, giving an income of $9,000.
MICHIGAN: There were received as sixteenth-section lands 1,067,397 acres, yielding $3,834,357 (up to sales of 1892) at 7 per cent. The 5 per cent fund (one-half of 5,058,000 acres of swamp lands) amounted to $815,505 in 1892. The number of acres unsold is not known, but in 1876 there were 388,000 acres of sixteenth-section lands unsold held at $4 an acre. The salt lands that were given (25 out of 72 square miles) to the normal-school fund so far have yielded $99,656.	Devoted wholly to internal improvements.	Escheated lands are a part of the school fund. In 1891 the primary school fund at 7 per cent, consisting of the sixteenth-section lands and escheats, amounted to $3,803,203. The primary school fund at 5 per cent amounted to $838,104.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
None. Apparently the State Normal School is supported from general revenue.	11 cents on the $100 of realty and personalty.	50 cents on each poll.
All fines, forfeitures (cities and incorporated towns exempted), laid by any court of record or justice of the peace shall be distributed by the county superintendent. This gave $23,257 in 1892. Apparently the normal schools are supported from general revenue.	2 mills on the dollar of valuation. Local authorities shall levy tax not to exceed 2 per cent for educational and 3 per cent for building purposes.	None.
Surplus dog tax if over $100. "The interest derived from the primary-school funds (5 and 7 per cent funds), together with the surplus of specific taxes remaining in the State treasury after paying the interest of the several educational funds and the interest and principal of the State department, forms the primary-school interest fund, the entire amount of which that may be on hand at the time is apportioned to the school districts of the State."—State Report, 1892, p. 45. The "specific taxes" above named appear to be taxes on corporations "laid by the constitution." In 1858 the surplus was $130,000 per annum. Both the specific taxes and the surplus now appear to be over $600,000.	For State appropriation see preceding column. The township supervisor shall assess 1 mill on the $1 of taxable property. There is a statement descriptive of the provisions regarding the amount of indebtedness that districts may incur for buildings, etc., by a two-thirds vote given in the Report of the Commissioner of Education, vol. 2, p. 1199, year 1893-94.	Do.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
WISCONSIN: There were received 958,049 acres of sixteenth-section lands, 500,000 acres public-improvement lands (act of Congress 1841), and the State's share of 5 per cent from the sale of United States lands within its borders, which last amounted to $455,254, all given to public school purposes. One-half of the swamp lands were given to the normal schools. (The swamp lands patented to Wisconsin up to 1880 were 3,071,458 acres) and form the so-called normal-school fund.	.....	Forfeitures and escheats, exemptions from military duty, and fines collected in the counties for breach of penal laws.
MINNESOTA: There were received 2,970,000 acres of sixteenth and thirty-sixth section lands, which in 1894 was valued at $10,712,120, having doubled in twelve years. An income of $360,700 is given.	.....	None.
IOWA: There were received as sixteenth-section lands 905,144 acres. In addition there were devoted to school purposes the 500,000 acres of internal-improvement lands and the 5 per cent of the sales of United States land in Iowa (amounting to $626,075 for schools). In 1895 the "permanent school fund" was $4,707,609, yielding an income of $235,663.	.....	Estates having no heirs.
KANSAS: There were received 2,801,806 acres, sixteenth and thirty-sixth sections lands. To the schools were also given the 500,000 acres of internal-improvement lands, the 5 per cent of the lands of the United States within the State as sold, and the 46,080 acres of salt lands; the last for normal schools. The State permanent school fund amounted to $6,166,389 in 1894, and the normal-school fund to $145,219. The interest on the permanent school fund was $346,634, and on the normal-school fund $41,050.	.....	Estates without heirs.

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
For institutes $6,000 may be taken from normal-school fund and $2,000 from "general fund," to which the State superintendent may add $1,000 from the "general fund."	1 mill on the $1 of valuation. The districts are limited in taxing themselves according to the number of pupils. See Report Commissioner Education, 1893-94, Digest School Laws, Wisconsin, Finances.	None.
Fines for breaches of penal laws not otherwise appropriated, liquor licenses, and estrays. The State supports normal schools and institutes. Any preparatory free school in a city or a village or a township organized on the township plan shall receive $400 from the State annually.	1 mill on the $1, to be known as the State school-tax fund, and the county commissioners (civil authority) shall levy another 1-mill tax, to be known as the local mill tax.	Do.
Exemptions from military duty; fines for breach of penal laws collected in counties. The teachers' institutes are partly supported from general revenue, as also the State normal school.	The county board of supervisors shall levy a tax for support of schools in county of not less than 1 nor more than 3 mills on the dollar. The district school board shall estimate (which estimate the county supervisor shall levy) the amount required for the contingent fund, not to exceed $3 a pupil; and for the teachers' fund an amount not to exceed, with semiannual apportionment of State money, the sum of $15 a pupil residing in district, and for schoolhouse purposes not to exceed 1 cent on the dollar. But the supervisors may levy $75 for contingent fund and $270 for teachers' fund, including, as before, the semiannual apportionment from State.	Do.
Exemptions from military duty and the proceeds of fines for breach of penal laws shall be applied in each county to support of common schools. Every insurance company shall pay $50 for support of the schools.	1 mill upon the dollar. Districts may vote a tax of not more than 2 per cent on the taxable property of the districts. Each high-school board shall estimate the amount required by it, and the county commissioners shall levy a tax not to exceed 6 mills on the dollar. Cities of the first class (15,000 or more) shall levy not more than 8 mills on the dollar where the assessed valuation is greater than $3,000,000; but in cities of 10,000 or more and in cities having a less valuation than $3,000,000 the board may levy as high as 10 mills.	Do.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
NEBRASKA: There were received 2,702,044 acres of sixteenth and thirty-sixth sections. The superintendent says 2,782,098.72 acres have been acquired by United States grant, 288,126 acres have been sold, 582,754 acres are under contract of sale, 1,538,564 are under lease, and 372,665 acres still to be disposed of. The total income from the sixteenth and thirty-sixth sections lands seems to have been, in 1894, $57,256, which includes $109,444 interest on unpaid purchase money; $750,000 were in the treasury awaiting investment. The 5 per cent arising from sale of United States lands in State is now $116,579.	.....	All grants of lands or other property to State, if given without conditions. Escheats and forfeitures.
CALIFORNIA: There were received 6,719,324 acres of the sixteenth and thirty-sixth sections lands, to which was added 500,000 acres of the internal-improvement fund. The State school fund is $3,464,250, consisting of $1,526,530 in 6 per cent bonds and $1,937,750 in from 4 to 9 per cent bonds, also such per cent (5?) as Congress may allow State on sale of Federal lands within her borders.	.....	Estates without heirs.....
OREGON: There were received 3,329,706 acres of sixteenth and thirty sixth sections lands. The 500,000 acres of internal-improvement lands, 10 per cent of the swamp lands (i.e., 404 acres), and the 5 per cent on sales of Federal lands within the State ($34,911) were also given to common schools. The interest on the funds was, in 1894, $163,000.	.....	Escheats and forfeitures, exemptions from military duty, and property granted to the State unconditionally.
NEVADA: There were received 3,085,428 acres of sixteenth and thirty-sixth sections lands. The 500,000 acres of internal-improvement lands were given to education. So far as land has been sold, the proceeds are thus invested: (1) Irredeemable 5 per cent State bonds to the amount of $80,000 and (2) in United States and State 4 per cent bonds to amount of $591,000. In treasury there is $123,288 cash.	.....	Fines collected under State penal laws; 2 per cent of gross proceeds of toll roads and bridges; escheats.
COLORADO: There were received 3,715,555 acres of sixteenth and thirty-sixth sections lands. The fund now amounts to $1,229,000; approximate interest, $150,000. In the day of the Territorial organization a claim of 100 feet in length in each lode was vested in the common-school fund.	.....	Escheats.....

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
All fines, penalties, and licenses shall be paid to county school authorities, but such as are imposed by municipalities smaller than a county shall belong to such municipality as imposes them.	1½ mills on the dollar valuation on the grand list of th taxable property of the State. Districts shall not levy more than 25 mills in any one year, and 10 mills for purchase of schoolhouse, etc., but the aggregate amount shall not exceed 25 mills. In cities of 1,500 and more the tax shall not exceed 2 per cent, and in cities of over 25,000, 15 mills; but the board of education may borrow money on bonds.	None.
Normal schools are apparently supported out of general revenue. The State inaugurated a method of solving the textbook problem, granting in 1885 $35,000 for the compilation of such books and $315,000 for the purchase of machinery, etc., incidental to their publication.	The county superintendent in counties of less than 200,000 must calculate 1 teacher for every 70 census children or fraction not less than 20, and for each assumed teacher there must be raised $500; but there must be an amount equal to $6 for each census child in the county. The board of supervisors in counties of fewer than 100,000 must levy a tax (to be known as the county school tax) not to exceed 50 cents on $100 of valuation of property and not less than a minimum fixed by the law in a proportional way.	$2 on men 21 to 60.
None. State apparently supports normal schools.	The county courts are required to levy a tax per capita, persons 4 to 20, that shall at least equal the tax per capita of persons 4 to 20 in 1892.	None.
There shall be set apart semiannually 5 per cent of all moneys received as State tax for school purposes, to be distributed pro rata.	An ad valorem tax of one-half of 1 mill on the dollar. County commissioners shall levy county school tax from 15 to 50 cents on $100 of property. There shall be set apart for school purposes 5 per cent of all taxes.	Do.
Fines, penalties, and forfeitures; estrays.	County commissioners shall levy a tax of not less than 2 mills on the dollar of real and personal property nor more than 5 mills. There is a State tax of one-sixth of a mill for support of normal school. But see Section B.	Do.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
NEBRASKA: There were received 2,702,044 acres of sixteenth and thirty-sixth sections. The superintendent says 2,782,098.72 acres have been acquired by United States grant, 288,128 acres have been sold, 582,754 acres are under contract of sale, 1,538,564 are under lease, and 372,665 acres still to be disposed of. The total income from the sixteenth and thirty-sixth sections lands seems to have been, in 1894, $371,207, which includes $109,444 interest on unpaid purchase money; $750,000 were in the treasury awaiting investment. The 5 per cent arising from sale of United States lands in State is now $116,579.	.....	All grants of lands or other property to State, if given without conditions. Escheats and forfeitures.
CALIFORNIA: There were received 6,719,824 acres of the sixteenth and thirty-sixth sections lands, to which was added 500,000 acres of the internal-improvement fund. The State school fund is $3,464,250, consisting of $1,526,530 in 6 per cent bonds and $1,937,750 in from 4 to 9 per cent bonds, also such per cent (5?) as Congress may allow State on sale of Federal lands within her borders.	.....	Estates without heirs.....
OREGON: There were received 3,329,706 acres of sixteenth and thirty-sixth sections lands. The 500,000 acres of internal-improvement lands, 10 per cent of the swamp lands (i.e., 404 acres), and the 5 per cent on sales of Federal lands within the State ($34,911) were also given to common schools. The interest on the funds was, in 1894, $163,000.	.....	Escheats and forfeitures, exemptions from military duty, and property granted to the State unconditionally.
NEVADA: There were received 3,985,428 acres of sixteenth and thirty-sixth sections lands. The 500,000 acres of internal-improvement lands were given to education. So far as land has been sold, the proceeds are thus invested: (1) Irredeemable 5 per cent State bonds to the amount of $380,000 and (2) in United States and State 4 per cent bonds to amount of $591,000. In treasury there is $123,238 cash.	.....	Fines collected under State penal laws; 2 per cent of gross proceeds of toll roads and bridges; escheats.
COLORADO: There were received 3,715,555 acres of sixteenth and thirty-sixth sections lands. The fund now amounts to $1,229,000; approximate interest, $150,000. In the day of the Territorial organization a claim of 100 feet in length in each lode was vested in the common-school fund.	.....	Escheats.....

the support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
All fines, penalties, and licenses shall be paid to county school authorities, but such as are imposed by municipalities smaller than a county shall belong to such municipality as imposes them.	1½ mills on the dollar valuation on the grand list of th taxable property of the State. Districts shall not levy more than 25 mills in any one year, and 10 mills for purchase of schoolhouse, etc., but the aggregate amount shall not exceed 25 mills. In cities of 1,500 and more the tax shall not exceed 2 per cent, and in cities of over 25,000, 15 mills; but the board of education may borrow money on bonds.	None.
Normal schools are apparently supported out of general revenue. The State inaugurated a method of solving the textbook problem, granting in 1885 $35,000 for the compilation of such books and $315,000 for the purchase of machinery, etc., incidental to their publication.	The county superintendent in counties of less than 200,000 must calculate 1 teacher for every 70 census children or fraction not less than 20, and for each assumed teacher there must be raised $500; but there must be an amount equal to $6 for each census child in the county. The board of supervisors in counties of fewer than 100,000 must levy a tax (to be known as the county school tax) not to exceed 50 cents on $100 of valuation of property and not less than a minimum fixed by the law in a proportional way.	$2 on men 21 to 60.
None. State apparently supports normal schools.	The county courts are required to levy a tax per capita, persons 4 to 20, that shall at least equal the tax per capita of persons 4 to 20 in 1892.	None.
There shall be set apart semiannually 5 per cent of all moneys received as State tax for school purposes, to be distributed pro rata.	An ad valorem tax of one-half of 1 mill on the dollar. County commissioners shall levy county school tax from 15 to 50 cents on $100 of property. There shall be set apart for school purposes 5 per cent of all taxes.	Do.
Fines, penalties, and forfeitures; estrays.	County commissioners shall levy a tax of not less than 2 mills on the dollar of real and personal property nor more than 5 mills. There is a State tax of one-sixth of a mill for support of normal school. But see Section B.	Do.

NOTE B.—*Tentative statement of the sources of revenue for*

SECTION A.—STATE OF CENTRALIZED REVENUE, INCLUDING AS

Vested funds (or "permanent funds"), income only to be used.		
Sale of public (originally mostly Federal) lands.	Federal surplus revenue loan of 1836.	State accumulations "inviolably set apart."
NORTH DAKOTA: There have been sold of sixteenth and thirty-sixth sections lands 130,474 acres for $2,310,053, of which sum a first payment of $462,000 has been made, the other portion being at interest at 6 per cent. The 5 per cent granted by United States of its sales of public lands brought in the sum of $5,408 in 1891-92, which was added to principal of vested fund, the interest of which and the rents, etc., of public lands form the "State tuition fund." Rent of school lands in 1894 netted $42,645; 80,000 acres additional were given for normal schools by the United States Government.	.....	Escheats .....
SOUTH DAKOTA: The sixteenth and thirty-sixth sections lands to be sold for not less than $10 an acre; 5 per cent of sale of land belonging to the United States; 80,000 acres are given to State normal schools. The two Dakotas, as a Territory, received 5,360,400 acres of sixteenth and thirty-sixth section lands.	.....	.....do.....
MONTANA: There were received of sixteenth and thirty-sixth sections lands 5,112,000 acres, which are to be sold for $10 or more an acre, 5 per cent of sales of public lands held by United States and 80,000 acres for normal schools.	.....	Escheats and forfeitures; grants not conditional to same purpose. Fund accumulating in treasury, proceeds of timber, stone, etc., from off school lands, except as otherwise provided.
WYOMING: There were received of sixteenth and thirty-sixth sections lands 3,480,281 acres. The percentage granted by Congress on sales of public lands held by United States.	.....	Escheats and forfeitures .....
IDAHO: There were received of sixteenth and thirty-sixth sections lands 3,068,321 acres. Apparently this has already produced a fund capable of yielding in 1893 $40,000, including, perhaps, the usual 5 per cent granted by Congress on sale of Federal lands within the State.	.....	Estates without heirs.....
WASHINGTON: 2,488,675 acres of sixteenth and thirty-sixth sections lands, which in 1894 gave an income of $77,800. Such per cent as Congress may grant (5?) of the sale of public lands held by people of United States within the State; 20,000 acres for normal schools.	.....	Escheats and forfeitures, grants not conditional to a specific purpose, funds accumulating in treasury otherwise unappropriated, proceeds of sale of timber and stone of school lands, except as granted for another purpose.
UTAH: No information.		

tne support of public schools in each State—Continued.

SUCH TAXES LAID BY THE CENTRAL POWER—Continued.

Statute funds at present converted to the use of school system or sums now annually voted from general revenue for support of public schools.	Specific State taxation for schools.	
	On property.	On polls.
None. Normal school partly supported from general revenue.	Each district shall levy a tax of not more than 30 mills on the dollar, and the county auditor shall levy a county tax of 2 mills on the dollar as a State tax.	$1 on each elector.
Fines for violating State laws. Normal schools apparently supported from general revenue.	County commissioners shall levy a tax of 2 mill on the dollar of taxable property. Districts are in general limited to 2 per cent, but not apparently required to raise anything.	Do.
All money arising from sale of town lots under laws of legislature to be paid into county treasury for benefit of school district in which lots are situated.	Optional	None.
Gifts not conditioned to a specific purpose. Fines and penalties under general laws of State.	Counties must levy a tax of not more than 3 mills on the dollar for all purposes.	$2 on each person 21 to 50.
Fines and forfeitures for breach of public laws.	County commissioners shall levy a tax of not less than 5 nor more than 10 mills on each dollar of taxable property.	None.
Fines, licenses, and estrays.....	County commissioners shall levy tax of not less than 8 mills on the dollar of assessed value taxable property. District boards may levy special tax not exceeding 5 mills unless voters consent, but no district tax shabll be over 10 mills. Cities of 10,000 are excluded from county taxation.	Do.

NOTE B.—*Tentative statement of the sources of revenue*

SECTION B.—LOCAL TAXATION

Kind of property taxed for local purposes.	Rate or limits of voluntary taxation.
MAINE: Not specified. Probably the same as for the State tax, i. e., "all property."	Not limited
NEW HAMPSHIRE: On polls and ratable real estate.	do
VERMONT: Grand list (the polls and 1 per cent of the assessed value of real and personal property).	One-fifth to one-half of grand list
MASSACHUSETTS: On property in the same manner as other town taxes are laid.	Such sum as the town deems necessary
RHODE ISLAND: Not specified	Such sum as the town judges necessary
CONNECTICUT: On real estate, ratable personal property, and manufacturing or mechanical business subject to taxation.	School visitors and selectmen fix the amount, but where towns have abolished district system amount is fixed in town meeting.
NEW YORK: "Taxable property," and in case of union free-school districts "all the real and personal property in the city or village taxable for defraying the expenses of its municipal government. The expression "taxable property" includes bank stock and railroad and telegraph property.	Not limited
NEW JERSEY: Real and personal property	Not limited
PENNSYLVANIA (see Section A under specific State taxation): District taxation is upon "all objects, persons, or property made taxable for State or county purposes, and shall be contained on the same blank."	Districts may tax themselves up to 13 mills
DELAWARE: When a school district has decided "for a tax," the assessment shall be made on polls (every freeman above 21 years is considered worth from $140 to $2,700 in addition to whatever property he may really own as a material fact; the tax on this is called a poll), on personal property of all white persons, and in the clear rental value of all the assessable real estate of white persons.	$400 for support of schools; $500 for building
MARYLAND: Taxable property	Should the State tax and income from "vested fund" prove insufficient to pay expenses of the schools of any county, the county school commissioners shall offhand impose a tax not greater than 10 cents on the $100, unless authorized to impose a higher rate by county (civil) commissioners.
VIRGINIA: Tax on property	10 cents on $100
WEST VIRGINIA: Real and personal property	Not to exceed 50 cents on $100 for school purposes, nor 40 cents for building purposes, but 70 cents if for a high school—in all, $1.20 on the $100.
KENTUCKY: Real and personal estate; corporate franchises directed to be assessed.	Not limited, except capitation tax. (See Section A and next column.)

for the support of public schools in each State—Continued.

(VOLUNTARY).

Conditions under which taxes not required by State (see Section A) may be laid, and for what purpose.	Conditions under which bonds may be issued, and for what purpose.
Voted at town meeting for general school purposes, including text-books. If a town support one or more high schools for ten weeks or more, it shall receive one-half the amount expended (but not to exceed $250) from the State.	Towns may raise money for establishing and maintaining free high schools and furnishing buildings and their appurtenances in the same manner as for supporting common schools and erecting schoolhouses.
Voted at town or school district, at legal meeting, for support of schools in the case of town tax; but in case of district tax, for purposes of procuring building and sites, planting ornamental trees, furniture, books, etc.	Majority of voters in district may hire money to build schoolhouse, but not to a greater amount than four-fifths of its cost.
Voted by district (at special meeting) for school purposes.	None, as far as known.
Voted by town for school purposes.....	Do.
Voted by town for maintaining schools, purchasing sites, erecting buildings and repair of same, and maintaining school libraries.	Do.
Voted as shown in preceding column; for the purpose of maintaining schools.	Do.
The common-school district meeting votes local taxes for purchasing sites and building houses, or renting, repairing, or furnishing them, including globes, maps, etc., for purchasing text-books and other supplies not to exceed $25 in any one year, for establishing a school library, for insuring buildings, paying teachers after State money has been exhausted, etc.	
Voters determine amount of tax at election of trustees of township for school purposes.	Legal voters by majority at meeting may authorize issue of bonds for sites, buildings, or repairs, at 6 per cent or less. An amount shall be levied each year to pay the principal and interest falling due in that year.
By vote of school directors or controllers for the purpose of keeping schools open from four to ten months in connection with the State apportionment. An amount not to exceed the regular annual tax.	School directors or controllers may borrow money at 6 per cent or less and issue bonds therefor in sums not less than $100, except in case the debt of the corporate body be already 7 per cent of the assessed value of its property.
Majority vote of district for support of schools or for building. (See preceding column for amounts.)	
See preceding column.....	
Levied by board of county commissioners for purposes of school district.	
District board shall levy the 50 cents on the $100 when it is necessary to enable the district to have four months' school or as many months as the voters have determined. This amount and that received from the State is called the teachers' fund.	District may bond itself, if it do not thereby raise its debt above 5 per cent of the value of its taxable property, provided also it be arranged at the same time that an annual direct tax to pay interest and redeem bonds in thirty-four years or fewer shall be levied.
Voters in a graded common-school district may raise 50 cents on $100 on property of white persons or a poll tax on each white male over 21, or both, for school purposes and buildings. In cities of the first class the maximum limit of taxation is 33 cents on $100, but in cities of the third and fourth classes the maximum is 50 cents. (See next column.)	To repair or provide schoolhouses and furniture the district trustees shall levy a capitation tax of $1 or less for four years on each (white) male of age or an ad valorem tax not exceeding 25 cents on the $100 of taxable.

NOTE B.—*Tentative statement of the sources of revenue*

SECTION B.—LOCAL TAXATION

Kind of property taxed for local purposes.	Rate or limits of voluntary taxation.
NORTH CAROLINA: Tax shall be collected on money, and shall be levied on all property, credits, and polls of the county.	(See Section A.) In case of special tax, 20 cents on $100 and 60 cents on the poll.
TENNESSEE: "All property subject to taxation for school purposes," and property, polls, and privileges.	Shall not exceed the State tax.
SOUTH CAROLINA: All the taxable property; nor may cities and towns exempt any manufactories from the duty of paying a school tax.	Consent of legislature is necessary, at least as far as districts are concerned. (Constitution.)
GEORGIA: Not stated.	Not limited; but see next column.
FLORIDA: Real and personal property.	3 mills on $1 maximum.
ALABAMA: Not stated.	
MISSISSIPPI: Taxable property and polls. (This additional tax on polls is called "additional poll tax.")	Additional poll tax not to exceed $1. (Constitution limits poll tax to $2 for common-school fund.)
LOUISIANA: Assessed value of property in each parish or municipality.	1½ to 10 mills.
TEXAS: Ad valorem tax on all real and personal property.	20 cents on $100, but this limitation does not apply to incorporated cities or towns constituting separate school districts.
ARKANSAS: Taxable property of the district.	5 mills maximum.
MISSOURI: "All subjects and objects of taxation."	(See Section A)
OHIO: Grand list of taxable property.	(See Section A); otherwise unlimited.

for the support of public schools in each State—Continued.

(VOLUNTARY)—Continued.

Conditions under which taxes not required by State (see Section A) may be laid, and for what purpose.	Conditions under which bonds may be issued, and for what purpose.
In townships, cities, and towns that are not now levying a special tax the voters shall decide as to levying such tax. Those in favor voting "for schools;" those opposed, "against schools." Certain counties are not allowed to avail themselves, or, rather, any part of those counties is not allowed to avail itself of this provision.	
Cities and incorporated towns having established higher graded schools are authorized to levy an additional tax, but not to exceed its limit of indebtedness. Also each municipal corporation of 2,000 to 4,000 inhabitants shall receive all moneys collected by it as State or county tax on property, privileges, and polls for common-school purposes, in order to enable it to sustain a high-grade public school.	
(See preceding column)..	No city or town shall create a bonded debt exceeding 8 per cent of its assessed valuation.
Any county having a "county school system" may levy a tax if two successive grand juries shall recommend it and two-thirds of the electors have voted for it. But a town having a school system of its own shall have no say in this vote. Tax for support of common schools.	
Voted by taxpayers.	
Small concentrations of population known as "city" or "town," and called for school purposes a district, are allowed by special act of the legislature to tax themselves. Thus the city of Gadsden (3,000 people) may tax itself one-fifth of 1 per cent on all property taxed by the State beyond the amount levied by the State for the lump school sum required by the law. (See Section A.)	
Any municipality, county, or separate school district (of 300 or more people) may levy a tax to maintain school after the expiration of the four months' school required by constitution in order to continue school.	
The wording of the law is "police juries (rural) and board of aldermen, etc., may levy;" but if these civil authorities fail to levy, the parish school board is directed to compel them to levy it by mandamus. Supreme Court decided that the legislature "can not force a parish to levy a [local] tax for school purposes." On petition of one-tenth of property taxpayers, vote is to be taken on question of providing buildings by increasing the rate of taxation of any parish, city, or incorporated town.	
Vote of two-thirds of taxpayers after petition of at least 20 property-tax paying voters in a district to county commissioners' court. For the purpose of continuing school and erecting school buildings.	To construct buildings and procure sites incorporated cities and towns may issue bonds, which shall not be to a greater amount than that a tax of one-fourth of 1 per cent, will pay current interest at 6 per cent, and "provide a sinking fund sufficient to pay principal at maturity."
Vote of district for school expenses. (See Section A)	By two-thirds vote districts may bond themselves up to 5 per cent of their valuation, but must also provide for interest and a sinking fund to extinguish debt in twenty years at latest.
By two-thirds vote districts not a city district of the first class may increase the tax given in Section A. For the purpose of continuing schools, establishing kindergarten, and for sites, buildings, furniture, etc. For purpose of maintaining school library of city districts the district board may levy annually one-tenth of 1 mill on the dollar.	When a majority of the electors of a district not a city district of the first class has voted taxes during a series of years for buildings and sites, the district board may anticipate the money to be thus raised by issuing bonds at 6 per cent or less. City districts of the first class may also issue bonds in the same way, save that the amount of bonds issued shall not exceed an aggregate tax of 2 mills for the next year.

for the support of public schools in each State—Continued

(VOLUNTARY)—Continued.

Conditions under which taxes not required by State (see Section A) may be laid, and for what purpose.	Conditions under which bonds may be issued, and for what purpose.
Trustees may levy tax, to be called special school revenue, for the purpose of building and all other necessary school expenses except tuition. They may also levy a tax for a supplementary tuition fund. They may also levy a special tax to pay debts.	Any incorporated city or town, by vote of the common council or board of trustees, may issue bonds for purpose of procuring grounds and buildings to the amount of $50,000, payable in one or twenty years, bonds to be sold for a sum not less than 94 cents on the dollar.
The directors of each district are "authorized," in order to support school not less than five nor more than nine months, to levy the tax given in Section A. This is taken to be mandatory upon the directors to raise a local tax.	For the purpose of building schoolhouses a district may issue bonds (by a majority vote) at 7 per cent, but may not increase its indebtedness over 5 per cent of the taxable valuation.
Voted by district for building purposes, but if a bonded indebtedness is also incurred in the same year the tax shall not exceed in districts containing less than 10 children, 15 to 20 years, $250; 10 to 30 children of same age, $500; 30 to 50 children of same age, $1,000. No legal subdivision of land more than 2½ miles away shall be taxed for such building. District meeting may also vote tax not to exceed one-half of the above for apparatus, school libraries, pay debts, and pay officers. District board levies tax to supplement amount received from State to maintain school five to nine months.	Districts may bond themselves to an amount conditioned on their school population by a two-thirds vote. But bonds must be made to mature in ten years and a sinking fund must be created by taxation. The proceeds of the debt thus incurred must be used for the purchase of sites and buildings.
Voted by district a tax for paying teachers as limited in preceding column, for purchase or lease of school, repair or furnish it, and supply it appendages and fuel, such amount as is deemed sufficient. If voters fail to vote sufficient sum to maintain school six months, district board shall levy it. High school board determines amount necessary for high school.	For building purposes and by majority vote, district may bond itself, payable in ten years, and levy a tax annually to pay interest and one-tenth of principal. (Loan shall not exceed 5 per cent assessed valuation of real property nor exceed $10,000 when loaned from State trust funds.)
Voted by legal meeting, but this is not really a voluntary tax except in amount, for it is the "duty" of the voters to levy the tax.	Two-thirds of the voters may cause bonds of district to be issued, payable in fifteen years or fewer, at 7 per cent interest or less rate, for the purpose of procuring buildings and sites. When this is done a tax must be levied to provide a sinking fund and interest. In the discretion of the board 20 per cent tax or less may be imposed to meet maturing bonds, in addition to annual levy, as related in preceding sentence.
(See Section A and preceding column).....	Bonds may be issued by majority of voters of an independent district (payable in ten years or at an earlier date) for the purpose of building or paying debt. Districts against which judgments have been rendered may issue bonds, for the redemption of which a tax shall be levied in addition to the other legal taxes.
In the case of districts by majority vote for the purpose of continuing school for more than three months. In the case of county schools for the purpose of building, paying teachers, and meeting contingent expenses. In the case of cities for the purpose of paying teachers and meeting "other running" expenses, to pay interest, and to create a sinking fund.	School district may issue bonds to the amount of 6 per cent of their taxable property if the majority of all the electors of the district assent in an election called for at the request of at least two-thirds of the qualified voters, provided there are 15 or more persons 5 to 21 years of age in the district. The proceeds of the sale of such bonds are to be used in erecting or purchasing one or more schoolhouses. In cities of the first class two-thirds vote of the board of education is sufficient to cause bonds to issue; in cities of the second class, a majority of the voters. The bonds of the cities of the first class are limited to thirty years at 6 per cent; of second-class cities to twenty years' run at 10 per cent.

NOTE B.—*Tentative statement of the sources of revenue*

SECTION B.—LOCAL TAXATION

Kind of property taxed for local purposes.	Rate or limits of voluntary taxation.
NEBRASKA: Taxable property	(See section A.) The tax for building purposes is unmistakably optional.
CALIFORNIA: Taxable property; the rate to be obtained by deducting 15 per cent for anticipated delinquencies and dividing the sum voted by the residue of taxable property.	For school purposes not to exceed 30 cents on the $100, for building purposes not to exceed 70 cents on $100.
OREGON: Assessable property, real and personal.	Not limited
NEVADA: Taxable property	do
COLORADO: Taxable property	Not limited numerically
NORTH DAKOTA: Taxable property	(See Section A)

for the support of public schools in each State—Continued.

(VOLUNTARY)—Continued.

Conditions under which taxes not required by State (see Section A) may be laid, and for what purpose.	Conditions under which bonds may be issued, and for what purpose.
Legal voters shall determine amount required for all purposes except paying bonded indebted or purchase or lease of schoolhouse. Legal voters may determine amount to be expended for school property, either by way of purchase or rent. When no bonds are voted for the purpose, but the aggregate voted for all purposes, whether current or special, shall not exceed 25 mills in any one year. In cities the board of education certifies amount to county (civil) commissioners, who levy tax.	For buildings and furnishing same two-thirds of the voters present may direct that bonds be issued as previously petitioned by at least one-third of the qualified voters. But a board of education of a metropolitan city may issue bonds by vote of a majority of the electors without a petition. Bonded debt is limited to 5 per cent of taxable property for district of 12 to 200 children of school age, but must not exceed $500 in districts of from 12 to 25 pupils, $1,000 in districts of from 25 to 50, $2,000 in districts 50 to 100, and $5,000 in districts from 100 to 200. In districts of over 200 the amount must not be more than 10 per cent of the taxable property. Interest shall not exceed 7 per cent.
By majority vote at a called election for the purpose of additional facilities for maintaining school or to build one or more schoolhouses.	On the petition of a majority of the voters an election may be called for the purpose of voting bonds for building and furnishing schoolhouses and liquidating debts. A two-thirds majority is required. The county (civil) authority shall levy a tax to meet the interest and principal as they mature annually.
Not stated	On petition of 10 legal voters of the district the board of directors may submit the question of bonding the district for the purpose of providing buildings and furnishing the same, to the electors, and if a majority so vote the bonds shall issue to an amount not to exceed 5 per cent of the assessed value of property with interest not over 8 per cent.
To provide additional school facilities and to keep schools open for a longer period than the ordinary funds will permit. The county superintendent shall certify to the civil county authority the amount required to maintain school four months, using as a basis $40 a month for teacher's salary. All other expenses of the school must be provided for by special district tax.	On petition of 20 voters of any district bonds may be issued for procuring buildings and furniture and paying debts if ratified by majority of voters. But bonds shall not exceed in amount 3¼ per cent of assessed value of property. They are to be redeemed in from five to fifteen years, and bear interest at 8 per cent or less, the interest and principal to be provided for by special tax.
(See Section A)	Majority of the district may vote to issue bonds for procuring property for school purposes and furniture. Bonds must not exceed $1,000 for each schoolhouse except in towns and villages of more than 300 inhabitants, when the amount shall not exceed 4 per cent of the assessed value of property. In addition to the amount required by law to be raised annually (Section A), there shall be levied a special tax to pay interest (7 per cent or less) and to create sinking fund.

CHAPTER XIII.

PSYCHOLOGICAL TENDENCIES—THE STUDY OF IMITATION.[1]

For previous related articles see: Report to the British Medical Association and Charity Organization Society of London, on the physical and mental condition of 50,000 children seen in 106 schools of London, by Dr. Francis Warner, F. R. C. P., London, Report for 1890–91, Vol. 2, pp. 1081–1138.—Facilities in experimental psychology in the colleges of the United States, by William O. Krohn, Ph. D., Report for 1890–91. Vol. 2, pp. 1139–1151.—Child study, Report. for 1892–93, Vol. 1, pp. 357–391.—The psychological revival, Report for 1893–94, Vol. 1, pp. 425–467.—Psychological, criminological, and demographical congresses in Europe, ibid., Vol. 2, pp. 1677–1699 (Dr. Arthur McDonald).—Mental fatigue in schools discussed in Germany, compiled and translated by Dr. L. R. Klemm, in Report for 1894–95, Vol. 1, pp. 449–460; same title in Report for 1895–96, Vol. 2, pp. 1175–1198.—Child study; extracts from address by Dr. G. Stanley Hall, Report for 1894–95, Vol. 1, pp. 1037–1040.

TOPICAL OUTLINE.—Continued progress in psychological investigation in universities, normal schools, and in circles fostered by school superintendents.—Efforts to unify the work of independent investigators.—Imitation as a leading subject.—Differences of opinion as to the primitive character of imitation, but general agreement that volition is early involved in imitative acts.—Problem for teachers to exercise the imitative-impulse within the limits of its voluntary range.—Imitation considered also as a sympathetic impulse, and hence the faculty by which social education is made possible.—Theory of M. Tarde as to the social significance of imitation prompts specific inquiries by American specialists and leads to a somewhat copious literature on the subject.—Value of the observational study of children.—Report of committee on psychological inquiry.—The psychology of the imitative functions in childhood as related to the process of learning.—Citations from a preliminary report on imitation, by Prof. J. Royce.—Extracts from the introduction to child observations, State Normal School, Worcester, by Principal E. H. Russell.

The interest in psychological study and investigation discussed in the Commissioner's previous reports shows no abatement. Universities are constantly increasing their equipment for experimental work in this field, observational study is extending among normal schools, and the circles for child study fostered by State and city superintendents are rapidly increasing. Efforts have been made from time to time to unify the independent groups of investigators, either by giving prominence to particular psychical elements, as sensations or feelings, or

[1] Prepared by Miss Anna Tolman Smith.

to particular activities, as imitation, imagination, or by question schemes that would enable scattered groups of observers to correlate their work. As the outcome of such efforts, large collections of observations have already been secured bearing upon a single psychical condition, impulse, or activity. Imitation in particular has proved a very attractive and fruitful subject. This faculty has excited attention from the time of Aristotle, but its treatment as a distinct psychological problem is of recent date, being closely connected with the scientific investigation of hypnotism. The marvelous play of suggestion and imitation in the control of motor impulses as manifested in the hypnotic subject at once brought imitation into view as a persistent and pervasive element in psychical action. Researches in the domain of animal instinct and intelligence have deepened interest in this faculty, which more than any other seems to imply the continuity of animal with human intelligence.

As regards education, the important question suggested by these investigations is the extent to which volition is involved in imitation and its relation to ultimate freedom. As to the origin of imitation in the child, whether it is purely instinctive and reflexive or partly volitional, investigators differ widely. Thus Preyer asserts: "However often imitation has the appearance of an involuntary movement, yet when it was executed the first time it must have been executed with intention—i. e., voluntarily. When a child imitates, it has already a will. But the oftener a voluntary movement is repeated, always in the same way, so much the more it approximates reflex movement. Hence many imitative acts, even in the child, occur involuntarily quite early. But the first ones are willed."

Wundt, with equal positiveness, declares: "The continued imitation by which a child comes to learn the language that is spoken round it is impulsive, not voluntary."

It is not likely that these differences will ever cease, since the interpretation of the earliest imitative movements depends upon vague memories in the adult mind or the more uncertain interpretation of infantile states. It seems, however, to be generally agreed that volition enters into imitative action at a very early period. Wundt recognizes volition in the process of learning to walk, to talk, etc. "The child," he says, "apperceives this combination of word and idea after it has been made intelligible to him with gestures, and associates it with his own imitative articulative movements. Following the pattern of these first apperceptions and associations, the child then forms others by imitating of his own accord more and more the words and verbal combinations that he accidentally hears adults using, and by making the appropriate associations with their meanings."[1]

Compayré, who denies volition in the earliest imitative acts, says: "Imitative movements, as soon as they become conscious movements,

[1] Outlines of Psychology (translation by Charles Hubbard Judd), pp. 292, 293.

pass under the control of the will. Then instinct disappears and individuality begins."[1]

Baldwin, who, like Compayré, recognizes a gradual development from impulsive to voluntary imitation, agrees also with him in regarding conscious imitation as involving volition. At the moment the instinct to imitate becomes a matter of consciousness, then, to quote Professor Baldwin's own words, "the mental copy, seen, heard, remembered, is set up and aimed at; imitation is no longer the organism's weapon; it is now the sword of the mind."[2]

And again: "In saying that volition—the clearly conscious phenomenon of will—arises historically on the basis of persistent imitation, what I mean, is this, that the normal child's first exhibition of volition is found in its repeated efforts to imitate something."[3]

Bain regards all imitation as voluntary in its nature. His utterance on this point is emphatic. "The voluntary command of the organs," he says, "means the power of imitation or of performing actions in consequence of seeing them performed."[4]

Froebel, who dwells ever on the self-activity of the child without analyzing its elements, recognizes that imitation and spontaneous activity are both manifested in the early plays of boyhood.[5]

The school of physiological psychology, of which Ziehen may be taken as the representative, finds no ground for the "assumption of a special faculty of the will," but emphasis is placed upon the relation between practice and the desired accommodations of the cortical mechanism, characterized by Ziehen as "an apparatus highly adaptable to the training of voluntary actions."[6]

Whatever meaning be attached to volition, attention to a model and conscious effort to reproduce it involve voluntary effort; hence, and this is the point of great significance to teachers, up to a certain point imitation may be regarded as not only a means of quickening perception, but also of strengthening the will. It is to be observed, further, that through the ever-increasing comprehension of relations, causes, and principles in the thing imitated there is gradual assent to free activity. This process is illustrated in the development of many of the chief artists of the world.

The notion that imitation represses originality is not well grounded, on the contrary, it will generally be found, as Bain has pointed out, that "in whatever department any individual shows spontaneous and unprompted facility, in that department will the same individual be

[1] L'évolution intellectuelle et morale de l'enfant, p. 184.

[2] Mental development in the child and the race, p. 290.

[3] Mental development in the child and the race, p. 367.

[4] The Senses and the Intellect, fourth edition, p. 434.

[5] Education of Man, p. 303.

[6] Introduction to the Study of Physiological Psychology, by Dr. Theodore Ziehen (translated by C. C. Van Liew and Dr. Otto Beyer), p. 274.

imitative or acquisitive?"[1] It must, however, be recognized that repetition tends ultimately to make action mechanical, so that the limit of progress in a specific direction through mere imitation is soon reached.

One of the important problems ever before a teacher is that of the exercise of the imitative impulse within the limits of its voluntary range.

Nor should imitation be considered solely from the individual standpoint. It is essentially a sympathetic impulse. Says M. Compayré, "Sympathy must be included among the auxiliaries of imitation; sympathy taken in its double meaning, either as the faculty by which we participate in the pains and pleasures of others or as the inclination which attracts two persons toward each other and inspires them with a mutual affection. In the former sense sympathy is in truth only imitation itself, a moral imitation, since it is merely the secret need of bringing our sentiments and our thoughts into accord with the thoughts and sentiment of others." It follows that imitation is the means of social development, it is the faculty by which social education is made possible. This aspect of imitation was elaborated in a striking manner in a work by M. Tarde on The Laws of Imitation. In this work the author seeks to separate as completely as possible the purely social side of human actions from the vital or physical elements in them. He purposes to sketch a pure sociology, or rather general sociology. The laws of this sociology, as he conceives them, should be "equally applicable to all actual societies passed or possible as are the laws of general physiology to all animals living, extinct, or conceivable."

In the endeavor to find reasons which adequately explain the entire series of social events and which exclude any other possible sequence than that in which events actually occur, M. Tarde explores the whole field of human activity, language, religion, society, industry—he establishes analogies between movements here and those in the physical domain and determines that social phenomena, like physical, repeat themselves with constant regularity.

From the analysis he reaches the proposition that the social order develops from individual initiative through imitation. "In the social order" he says "there is nothing but invention and imitation" (Tout n'est socialement qu'inventions et imitations). Whatever exaggeration may be detected in this exclusive proposition, the work of M. Tarde is of interest here because it seems to have prompted the investigation proposed by Professor Royce in 1894, and popularized by an article in the Century Magazine (May, 1894). In this article, which discussed the whole subject in a light and discursive manner, Professor Royce submitted a schedule of questions intended to secure responses from the most varied sources.

[1] The Senses and the Intellect, fourth edition, p. 440.

The questions were not designed merely to accumulate examples of imitation. They included what are termed "original imitations;" that is, instances where the chosen model or elements serve as a medium for the expression of the inner self. Such are the dramatic impersonations or "systematic mimicry" in which many children indulge. Imitative naughtiness was also specified as a field for investigation and early manifestations of "sympathetic emotions," which enter so largely into the moods of the masses.

Also as a means of completing the study of imitation, Professor Royce asked for accounts of the reverse function, the willful tendency that causes certain children to react against all models. These inquiries indicate that imitation has a deeper significance for Professor Royce than mere repetition, upon which M. Tarde places chief stress. Professor Baldwin, in an earlier article,[1] had considered the genetic development of imitation from the organic to the voluntary stage. Incidentally he showed, also, defects in M. Tarde's theory, especially its failure to recognize choice and judgment as to a model consciously followed.

Although others were working at the same problem, it was in particular the articles by Professor Royce and Professor Baldwin that made imitation the chief subject of interest in school circles, and the result has been a copious and varied literature of more or less interest to teachers. The committee on psychological inquiry of the national council took up the subject of imitation as related to the process of learning. Their report will be found in full in this chapter.

Professor Baldwin's Mental Development in the Child and the Race, published in 1895, elaborated the author's own conception of imitation, tracing its relation to the whole process of mental growth. Amid much that is conjectural, admittedly so, in the theory advanced, the work abounds in suggestions stimulating to the teacher. A preliminary report on imitation was made by Professor Royce before the meeting of the American Psychological Association December, 1894, and published subsequently in the Psychological Review (May, 1895). The report was especially characterized by the effort to classify and define the several processes which are commonly recognized by psychologists as imitative, and it was extremely happy in its exposition of the subjective phase of the process. A portion of the article bearing on this view is cited below.

Among the records of observations or accumulated examples of imitative arts, two should be noticed particularly; the first, entitled, "The suggestibility of children," by Maurice H. Small, fellow of Clark University; published in the Pedagogical Seminary of December, 1896. The study related to the effects of suggestion rather than to imitation, but as imitation is the most constant outcome of suggestion, the record naturally turned upon this activity.

[1] Mind, January, 1894.

It is of special interest to note that this record was made possible through the cooperation of superintendents and teachers in many States, who responded to the syllabus sent out from Clark University. The collection is intended to illustrate the influence of suggestion upon motor impulses, but as might have been expected from the conditions under which the data were collected, the relation between the main trend of the discussion and the particular instances is often vague or forced. Mr. Small hints at a method of instruction and discipline by suggestion without explicit characterization. The experienced reader will recognize that it is an influence ever present in school life, but not easily defined or regulated.

The volume of child observations, first series, Imitation and Allied Activities, edited by Miss Ellen M. Haskell, of the State Normal School at Worcester, comprises observations made by the students of that institution. The principal, Mr. E. A. Russell, furnishes an introduction which sets forth very distinctly the purpose, the limitations, and the advantages of this particular kind of child study. Copious extracts are cited in this chapter from Mr. Russell's introduction to meet inquiries upon these several points which are widely discussed in normal schools at the present time.

This survey, though confined to a single line of inquiry, may serve to indicate the trend and method of observational psychology as fostered at many centers in this country, and the efforts to correlate these observations with the more exact investigations of specialists. The actual value of such observations in extending our knowledge of psychical life appears as yet somewhat problematical, but there is abundant testimony to its admirable effects in kindling sympathy for childhood, and thus increasing the personal influence of teachers in guiding and developing their pupils.

The opinion expressed by Professor Burnham, of Clark University, is constantly reiterated by other leaders of child study. "It is," he says, "primarily for the teacher, secondarily for the children, incidentally for science."

REPORT OF COMMITTEE ON PSYCHOLOGICAL INQUIRY — THE PSYCHOLOGY OF THE IMITATIVE FUNCTIONS IN CHILDHOOD AS RELATED TO THE PROCESS OF LEARNING.[1]

By Wm. T. Harris, Chairman.

The undersigned committee on psychological inquiry beg leave herewith to present their report, calling attention to a new and promising opening for educational psychology, which has been made

[1] Reprint from Proceedings of the National Educational Association of paper read before the National Council at Asbury Park, N. J., July 7, 1894.

through a study of the imitative functions in childhood with a view to explain mental development and the process of learning.

The felicity of this selection of imitation as the opening study in the psychology of education will appear upon consideration. For imitation, in its purest and simplest form, that of mechanical repetition of the actions of another person is, by common consent, placed at the bottom of spiritual achievements. A monkey or a parrot can mimic actions or speech, and to call the action of a human being parrot-like repetition or a process of aping is to express reproach and contempt for it. What teacher is there that does not despise mere verbal repetition in his pupils? Can there be a greater paradox in educational psychology than the theory which sets out with the function of imitation, and attempts to show that all forms of intellectual and moral activity are only varieties of this despised mode of action? If there is an attractive method of bringing psychology to the attention of teachers surely it has now been found. The sheer audacity of the theory that places the stone which the teachers had rejected for the head of the corner will fix the attention alike of the primary school mistress and the professor in college.

But there is a consideration connected with imitative action which makes it the most fruitful approach to psychology, for it explains the mode in which the individual man unites with his fellow-men to form a social whole. It introduces us to the formation of institutions, the family, civil community, the State, the church—those greater selves which reinforce the little selves of isolated individuals. For the study of imitation leads to the discovery of the modes by which the individual man repeats for himself the thinking and doing and feeling of his fellows, and thus enriches his own life by adding to it the lives of others. Thus his own life becomes vicarious for others, and he participates vicariously in the life of society.

What are manners and customs but imitated forms of doing, that preserve the results of successful experience in dealing with nature or in cooperating with one's fellows? What is fashion, with its apparently capricious changes, but the method of emancipating individuals from the tyranny of old customs and usages, that insist on minute punctilios in matters that are unimportant, except as symbols of our membership in the social whole? Thus one kind of imitation supplants another as more progressive. The fashions of the semicivilized and savage people last without change from generation to generation—and, indeed, it is likely for hundreds, and even for thousands, of years—because the savage intellect can not as yet attain the strength to discriminate between moral and indifferent actions. The savage has only two kinds of deeds—moral and immoral; while the civilized man has three kinds—moral, immoral, and unmoral. Thus that form of imitation which we all despise as mere fashion has sig-

nificance as the means of emancipating us from that heavy yoke of ceremonial that once prescribed the forms of our indifferent actions as though they were of moral or religious import.

Imitation develops, on the one hand, into habits, or customs and morals, and this is the will-side of human mind; and, on the other hand, it develops into perception, memory, ideas, and insights, this being the intellectual side of mind. It is evident that the pedagogic interest in psychology is the evolution of the higher faculties out of the lower. It is all-important for us to understand this progressive step by which free moral action develops in the place of mere unconscious use and wont. We must discover how mere external memory of borrowed ideas gives place to insight. It is necessary, first of all, to discover the most elementary forms of imitation. In this research the students of physical phenomena have greatly aided. The discovery of the fact that a small per cent of people are so sensitive to the mental influences about them that they can, without the intermediation of words, read the thoughts of others has been made and verified in numerous instances. The study of hypnotism has taken up this fact into a class of related facts belonging not only to the intellect but to the will and the emotions as well. The phrase "hypnotic suggestion" has come to play a great rôle in elucidating the rudimentary facts of imitation. The hypnotizer suggests an idea, which the hypnotic subject takes up and carries out in feeling or action. The rapid progress of scientific investigation in this field of psychic research promises to throw light on all social thought, feeling, and action. It will help us to understand much that has been obscure in the rise and spread of popular beliefs, the genesis of social tornadoes, like the Crusades, the French Revolution, the Tartaric invasions of Europe, or even such local affairs as strikes and mobs.

We must not lose sight of the essential fact that shows itself even in the most rudimentary of the phenomena of imitation. There can be no imitation whatever except on the part of self-active beings; in other words, only souls can imitate. "Imitation," says Compayré, "is the reproduction of what one has seen another do." It is therefore always to some extent an act of assimilation. Even if we extend the meaning of imitation so as to include unconscious mimicry and all phenomena akin to hypnotic suggestion, still it is self-activity that does the imitating. What is beheld as an act of another is converted by adoption into an act of self. The pride and pleasure that the infant exhibits on the occasion of his first conscious imitation has its root in this, that he has made something his own, has proved himself equal to imitating a movement in himself by his will; he has revealed his selfhood to some extent. This is the significance of play, which is chiefly imitation, that the undeveloped human being is learning to know himself by seeing what he can do. He is reveal-

ing himself to others and to himself, and getting strength in his individuality.

Thus we see that there is an element of originality in the most mechanical phase of imitation. The self is active and assimilative. It sees an external deed, which it proceeds to make its own deed by imitation.

It proves itself to possess a human nature identical with the one whom it imitates.

Originality grows by progressive deepening of the insight into causes and motives of the thing imitated. The lowest stage of imitation superstitiously imitates all the details, because it has no insight into the grounds and purposes of the action imitated and but little comprehension of the means employed. When it understands the means and the motives, it strikes out for itself and makes new adaptations. It modifies its imitation to suit differences of circumstances.

Originality grows with this ascending comprehension of means and purposes. There comes a time when the imitative child comprehends the principle as well as does the master whom he imitates, and then he is emancipated from all imitation in this part of his education. If he keeps on and comprehends the genesis of the principle from deeper principles, he emancipates himself from even the "hypnotic suggestion" of the principle itself, and all external authority has become inward freedom.

M. Tarde, who published his great book on the Laws of Imitation in 1890, speaks of self-imitation, as in the case of habit (p. 83), which he defines as a sort of "unconscious imitation of one's self by one's self." Here, in the stages of originality, where the person has learned to comprehend what he once imitated, and now understands it in its causes and in the reasons for its existence, is self-imitation, if we are to speak of imitation at all. It is no longer an activity at an outward suggestion, but purely spontaneous. It has vanquished the external object by ascending to its causes.

It is worthy of note that this book of M. Tarde is a study of sociology; for, in the French Revolution, the thought of Rousseau produced individualism, and the social whole was denied a valid existence in the shape of the State, except in so far as it appeared as a free contract between individuals. It was not considered that any contract presupposes a preexistence of state or government, a social whole to give validity to the contract. It is well that this new movement in psychology, which proves the substantial basis of mental evolution to lie in social institutions, should receive its great impulse from a Frenchman. M. Tarde is the anti-Rousseau.

The profoundest thinker of the human race, Aristotle, hits upon this subject of imitation in his Poetics, making it the basis of his philosophy of art. What he says in the fourth and ninth chapters of

the book on the subject of Mimesis, or imitation, rather leads us to see a deeper meaning in the word than mimicry or mechanical repetition. It seems almost to mean symbol making. "Man is the most imitative of animals, and makes his first steps in learning by aid of imitation," he tells us. Man is a symbol-making animal always, in whatever he does; making a symbol of what he is in his essential nature; always repeating in himself the symbols of the existence and actions of all other beings.

Leibnitz, the philosopher who translated Aristotle's ideas for modern readers, has told us in his monadology that each soul is a monad which, by its self-activity, repeats for itself or represents the whole universe. This is imitation on a grand scale—imitation transfigured, we might say—that, by self-activity, assimilates the whole universe. The monad creates for itself the world that it perceives. Here, we see, is the harmony of freedom and authority. The soul is not determined by what lies outside it, but determines itself so as to reproduce the beings and the causes that are outside it.

Here, too, is the social man again of M. Tarde; for each man has this one destiny, to sum up in himself the life and deeds of the race.

The latest great world poet, Goethe, in his Wilhelm Meister, treats the problem of culture or education, in its widest sense, in connection and contrast with the problem of dramatic art—how to make an actor. The individual sees ideals above him, and impersonates them; loves them, and imitates them; wears them as a player acts his part. Gradually he acquires as a second nature his ideals, and must keep growing on into new and higher ideals. The mere actor (he shows) must be able to assume quickly all characters, and yet possess no character himself; he must be a sort of professional wig block to hold, one after another, all kinds of wigs, but to have not even a scalp of its own. Goethe's favorite characters were those who react against their environments by internal development. They always press beyond imitation toward the indwelling principle of that which is imitated, and thus attain freedom. Prof. Mark Baldwin, now of Princeton University, was one of the first to take up and develop this function of imitation as the key to educational psychology. His articles in Science, in 1891 and 1892, and more recent articles in Mind, 1894, and, finally, his work on Mental Evolution in the Child and the Race, form a large and valuable contribution to this study.

Prof. Josiah Royce, of Harvard, has taken up the same theme, and with the extensive resources at his command has presented it in more suggestive and more popular forms than had been done before. Those who have read his charming article in the May number of the Century on "The imitative functions and their place in human nature" need not be told so much as this.

Your committee in this their report have not attempted to illustrate the application of this important category of imitation to the

subject of the process of learning in childhood, but have preferred to leave this illustration for the round table discussion of Monday evening, in which Professor Royce has consented to assist and give his own presentations of one of the phases of this theme.

Respectfully submitted by

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Committee on Psychological Inquiry.

EXTRACTS FROM A PRELIMINARY REPORT ON IMITATION, BY PROF. J. ROYCE.[1]

Imitation of motor functions.—"To us all the word imitation first suggests motor functions, such as those of the child that struts about as a soldier, or that runs on all fours as a dog, or that learns to talk. Such functions are very numerous. We observe them in many animals, including birds. Their characteristic is that the imitator is more or less clearly aware of a model, and finds his own body more or less able to repeat certain usually extensive and complex movements of this model. This repetition gives satisfaction to the imitator. Imitation of this sort is to be roughly classified as either more or less critical. Sometimes the imitator is content with the roughest reproduction. Sometimes he is cautious, and is watchfully anxious to do precisely as his model does. A mocking bird, as I at one period often observed in the case of a household pet, appears to study, with very great care, at least some of the series of notes that he reproduces. Some children far surpass others in an early pedantry about the enunciation and use of their words. In any case, meanwhile, the subjective experiences of the imitator are here, at best, only in part identical with those given him in the stimulus presented to his senses by his model. He hears sounds and replies by sounds, but of course he feels more or less the muscular and other organic disturbances incident to the reproduction. He sees the movements of his model. He both sees and feels his own imitative movements, and in all this he feels the latter as his own. In consequence, the imitator usually takes what is often called a decidedly subjective sort of interest in his power to imitate. His activity has thus two strongly contrasted aspects. He watches his model, so far as he watches it at all, with a highly objective faithfulness. So far, his imitation depends upon a theoretical and very self-surrendering sort of outward scrutiny.

"On the other hand, he delights in his own imitative powers as his

[1] Psychological Review, May, 1895.

own, i. e., as corporeally interesting events in his own organism, just as even the mocking bird very obviously does. On this side the activity is, in the popular sense of the word, as self-centered as is eating or catching prey. That is, it is an activity whose conscious aspect involves an interest in interorganic experiences. And, on this side too, the imitative process in our children is a great meeting place about which all sorts of self-considerate and self-conscious interests gather. Thus one sees how highly interorganic, or subjective, as well as how highly outward-looking objective, the imitative consciousness in the present class of cases has to be. Hence the enormous fecundity and various outcome of such imitative interest. Vanity and conscience, ideal devotion and flippant mockery, tame subserviency and the loftiest originality—all these tendencies alike may, and in fact normally do, take root in this fruitful soil, and any of them may grow into the child's later character, and all because he was, in the first place, disposed to repeat the complex motor processes of his models, and so was forced to set off his consciousness of his own movements against his perception of the movements of others, thus emphasizing both his ideas of himself and his ideas of his models, each set of ideas by contrast with the other set. Imitation may thus become, to use the words again in their purely popular sense, the most self-abnegating or the most self-considerate of tendencies, according as, in the end, one or the other of these opposing drifts of attention gets emphasized, i. e., according as one comes to consider rather his own imitative organism or the outside model."

Imitation of intelligent functions.—"So much for a first and most familiar class of processes defined as imitative. But we, all of us, extend the word imitation to include those intelligent functions which tend to the voluntary production of external objects resembling certain other objects called the models of the objects produced. Thus drawing, painting, modeling, building, mechanical skill of all sorts, are universally named imitative functions. In our own cases such functions, as a class, are obviously almost altogether derived, directly or indirectly, from the functions of the former class just characterized. We learn, namely, to reproduce things, in whole or in part, by first having learned to imitate people. Mechanical skill may early become self-directing. But it is probably always, at the start, socially guided. Psychological complications are, accordingly, here of much the sort as in the foregoing class of cases. Our imitations of objects involve vast numbers of relatively controllable conscious processes besides our perception of the finished products which resemble the stimulating models. And here, too, in consequence, both our relatively objective or outward-looking, and our relatively subjective or inward-looking interests get a correlative development as we learn to imitate a development which may have the utmost complexity and the most momentous psychological consequences. On the whole,

however, the imitation of things generally tends, as they say, to send us out of ourselves, i. e., outside of our interest in the processes of our own organisms, still more than does the imitation of the mere acts of people. Our imitative deed is transient; but, when we make something by the deed, its product here remains to calm our more anxious or our vainer interest in our own motor processes as such. Hence it is that musicians are more subjective in mood than are architects; and it is easier to be vain about matters of social etiquette than about one's skill as a carpenter, in case one has any such skill; while, to pass to another case where imitation is complicated with originality, nobody can judge his own book while it is in press as he can after it is in cold print and binding before him."

General nature of imitation.—"Now I have laid stress upon the factors present in these two classes of cases of imitation, because I have meant to use them to illustrate the general nature of imitation itself. In these two classes of cases imitation is not merely, as a psychological process, the reproduction of a series of sense stimulations, or of external perceptions by means of a series of motor processes; but it is something still more complex. It is not only a process by which we reproduce one set of data by means of another set of data like the first, but it is also a process by which we get two sets of data whose inevitable contrasts are as interesting and as instructive to us as their purposed resemblances. We get an interpretation of the perceived model through the imitation of it. On the other hand, to say that imitation in these cases is an act whose main motive is to interpret my perceptions by means of my deeds, is indeed true; but, of course, so far the same might be said of all those acts, such as looking, listening, approaching an object, grasping, touching, handling, exploring in the perceptive field—of all acts, in short, which involve intellectually valuable motor processes. What, then, is the characteristic feature of the imitative acts in the mentioned classes of cases? Does it not obviously lie in the fact that my interpretation of what I am usually said to perceive outside of my organism in the external world, is in the case of these classes of imitations, conditioned upon my setting over against my perceptions a series of motor processes, or of perceived results of motor processes, which in its wholeness contrasts with the other series in the one principal fact that the motor processes, the imitative deeds or their results, appear to me relatively controllable, plastic, reproducible at will, while otherwise the two series are largely similar.

"When I learn to grasp an apple, the grasping is, indeed, once learned, an easily reproducible and so controllable deed, and on suggestion is remembered as such. But when I learn to say *apple*, upon hearing the word pronounced, the act, once in my power, is felt as controllable, but as to result it resembles its model (namely, the word apple, pronounced by my neighbor)—something that concerns not its

controllableness, but some of its other characters. Thus in these cases imitation is definable, from the psychological side, as an act that interprets an uncontrollable perceptive series by setting over against it a series of experiences that appear to be similar to it in content, but to be also in contrast with it by virtue of their controllableness. Or, again, an imitation is an act that tends to the interpretation of what is beyond my power, or is independent of my movements, by contrasting it with what otherwise resembles it, but is in my power and is a result of my movements. This feature of imitation, viz, that it accomplishes the aim of throwing light on the uncontrollable percept by setting the controllable deed beside it, is, I suppose, the principal intellectual function of the higher imitative life."

Idealization of imitations.—"This principle of the tendency to deliberate idealization of our imitations, to deliberate deviations from the literal, one finds, then, in the most varied forms, in play, in art, in the far-reaching and deep-seated tendency, very complex in its origin, to translate space relations into time relations, and vice versa, in every form of fondness for what one may call symbolical motor processes; and so, finally, with very momentous consequences, in all those motor processes that are connected with the growth of our theoretical thinking. That our thoughts are in this general sense conscious processes by which we constantly mean to imitate the tenet of the things that we experience, is perfectly obvious. Equally obvious is the fact that to think experience is to translate it into terms which are decidedly foreign to its character as it comes to us, apart from such ideal reconstruction, and in its first intention. Now, thinking accompanies motor processes, abbreviated and truncated and rendered abstract in all sorts of ways, but very obviously and highly imitative in all the cases where we get them in any relatively unabridged form.

"The gesture language is a case in point. It gives the gesturer trains of experience of a very complex character, which are in a summary and more or less symbolic fashion similar to the primary trains of experience which by his gestures he undertakes to describe. For gestures we who speak have now learned to substitute trains of words, which we follow with an endless chain of attentive processes shifting from one series of images to another. But the series of attentive processes, as it follows now these, now those images, gives us a total inner experience which we call an account of the experienced reality beyond the thinking process. The value of this account we judge by its resemblance, not in detail, but in its total network of related elements to those aspects of the relatively external experience which our thinking means to emphasize. And yet, on the other hand, how unlike their originals our abstract ideas mean to be. How far is the thinker's imitation from being a mere inner reproduction of the external experience about which he thinks? It is the very contrast which here enlightens us, when it is accompanied by a consciousness of the

sort of agreement which we all the time intend. In symbolic imitation the imitative subject means to neglect all of his model except his own chosen aspect of it; and even this aspect he generally means to reproduce in terms of a sort of inner experience which differs from it as widely as the data of one sense * * * can differ from those of another."

Imitation psychologically defined.—"Imitation and model are contrasted series of presentations whose relation keeps them apart. And hence it is that, as I myself suppose, imitation is, psychologically speaking, the one source of our whole series of conscious distinctions between subject and object, thought and truth, deed and ideal, impulse and conscience, inner world and external world—in short, of all those familiar and fundamental rational distinctions which psychology has hitherto found so baffling. The contrast between model and imitation is, to my mind, the first appearance in consciousness of that differentiation which in the end makes internal and external experience not merely qualitatively different—as, of course, they more or less are from the first—but consciously discriminated, as at first they seem not to be."

EXTRACTS FROM INTRODUCTION TO CHILD OBSERVATIONS, STATE NORMAL SCHOOL, WORCESTER, MASS.

Mr. E. H. RUSSELL, Principal.

Aim of the observations.—"The main object in making and recording the observations that constitute the present volume has been to put our students who are preparing to be teachers en rapport with children."

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"The aim has been not a scientific study of children in the interest of psychology, but an attempt to bring our future teachers into closer and more sympathetic relations with them as individuals. In this respect the undertaking has proved highly successful, and it pretends to nothing more."

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"Wholly new discoveries in the domain of child nature are scarcely to be looked for; but rather a more careful exploration, fresh points of view, better insight, juster emphasis, something like a new reading of an old and familiar book. Our own observers have been especially encouraged to seek for the naive and spontaneous activities of children, rather than for what is exceptional or responsive to suggestions from parents and teachers. The conditions most favorable for this kind of observation are perfect freedom and unconstraint on the part of the child, and, if possible, complete unconsciousness of being the object of special interest or attention. This, of course,

requires much tact and self-effacement in the observer; but I think the following pages will show that such tact has not been wanting."

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"It has seemed to me of prime importance to keep the motives and direction of this study of children right end foremost; that is, not to forget that we want to know children in order to enter into fuller sympathy with them, not to let the knowing, however scientific, stand as the sole end in view—save in the case of a very small number of devotees of science for its own sake, and even here I should be very particular about requiring such to show their credentials. I deem it better not to urge young teachers to assume the scientific role, to think that nothing short of this or other than this is of any dignity or avail."

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"It has been objected that the value of these contributions is vitiated by their fragmentary and detached character; and it has been suggested how vastly more conclusive and satisfactory they would be if accompanied by such particulars of time, place, and circumstance as would give them an ampler background and perspective. Perhaps so. But we encounter two main difficulties here. First, the ancestry, environment, and personal history of any child, in such degree of minuteness and accuracy as could be of real service, are matters by no means easy to come at. And again, if such details were put before us, it would be found exceedingly difficult to trace their influence upon the case in hand. The river of childhood does indeed run by our very doors, but the springs that feed it are mostly beyond our horizon. We can not begin at its sources, because we do not yet know them. They are precisely what we are trying to discover; and our only way is to note in which direction the current flows, and then follow it upward as best we can. In such a study as this a vast body of facts must be accumulated before their connections and dependencies can be made apparent; and these facts will often be like the arrow points and potsherds which the archæologist treasures up, until at length by their variety and numbers they flash into relations and unities which singly they could give no hint of. All work in inductive science must be superficial before it can be deep. We can never take the second step first. But further than this, it is not clear that, in the great majority of cases, a given childish act would receive much, if any, illumination from such particulars of the child's surroundings as would be accessible to an ordinary observer; for example, the age, nationality, and occupation of parents and grandparents, number and ages of brothers and sisters, outline sketches of nurses, playmates, and other companions, social and pecuniary status of the family, location of the home, personal history of the child from birth, etc. In children presenting marked abnormal peculiarities (not more than 1 or 2 per cent of the whole), such

facts might indeed have important significance to a medical man; but that would mean a wholly different kind of investigation, and one obviously not within the purview of the present study. The influence of heredity and environment, especially the former, is by no means as yet so fully made out and understood, even by specialists, that its application as a factor in every case can be readily perceived, and made serviceable. If any reader will take the trouble to look at a dozen of the records that follow, taken at random, and then ask himself the question just how and in what respects they would be rendered clearer and more conclusive by any use he could make of such personal details as have been enumerated, I should be glad to hear his answer. No one doubts, in general, that such facts do have some bearing on each particular case; but it is quite another matter to say definitely what that bearing is, and how it is to be traced and its connections shown.

"I suspect that the state of our knowledge is not sufficiently advanced for this, and will not be for a long time to come. Nor has the thing been attempted, except in a very loose and sketchy way, even by those who have given us the most minute and systematic accounts of individual children—as Preyer, Darwin, Tiedemann, Miss Shinn, or any other, so far as I am aware; least of all, perhaps, by Professor Sully, in his Extracts from a Father's Diary, who yet deplores its absence from the Worcester records—of which, nevertheless, he does not fail to make good use in his latest volume. It seems, therefore, a superficial, if not captious, demand to ask that these records of ours should be loaded with a marginal accompaniment of facts (even if they could be had) that nobody has hitherto found it feasible or thought it worth while to give, and which, if furnished, could not be to any useful extent interpreted or applied. To hold a child, 'root and all,' in your hand, to transplant to your notebook even its smallest act with all the rootlets and soil, racial and individual, adhering intact, is a feat of far greater difficulty and delicacy than is implied by the easy remark that we 'ought to have more' of the circumstances, associations, etc., in order to form a satisfactory judgment. I think we need to know much more of what there is in children before we are ready to attack the questions, how much there is, and how it came there."

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Reflections upon the observations.—"The thing that has struck me most forcibly in my delighted perusal of these records is the spirited way in which the imitative acts of children are carried on—the unflagging repetitions of the same simple things, and the ready support and transfiguration that fancy lends to barren details and materials, creating from moment to moment fresh interest and variety. It has seemed as if I were privileged to stand at the fountain head of life and see its waters bubble forth from exhaustless hidden depths as by perpetual miracle.

"Next to this buoyancy of spirit, as a source of interest, comes, perhaps, the suprising accuracy of children's earliest imitations. How unerringly the little actors seize upon the very 'pith and marrow' of much that goes on in the new world around them, and with what a sure and even artistic touch they often reproduce it and give it the right emphasis in their play. The abounding fancy which they display is not fancy merely, but is at the same time well anchored to truth, and shows a grasp of the act imitated, in its essence and meaning, that is remarkable in being so much beyond the child's power of description and speech at that age. There is thus a language of things and events that speaks to the child, and is understood by him, and intelligently responded to by his imitative acts, long before he is able to comprehend and use conventional speech. Here is an avenue and vehicle of acquisition and expression that antedate even the mother tongue. And this fact, by the way, suggests the question whether our school-teaching does not too soon turn away from this natural and universal language, in which the child shows himself such an adept, and unwisely attempt to replace it with arbitrary and artificial word signs, a later and more complex acquirement, both in the race and the individual, and one for which the infant's powers are not yet ripe? Whether there is not at this age a considerable tract of time wherein, by a simple method of example and imitation, and mostly in silence, a child might be taught many things more effectively, with less strain and confusion of mind, than under conditions which involve the usual accompaniment of pedagogical verbiage? In a word, since children are on the alert for things to do months and years before they have any ear for wordy explanations, could not their first teachers borrow with advantage something from the art of those who instruct the deaf?

"Again, the expansive and progressive character of play from year to year is noticeable and suggestive. It begins impulsively with salient and detached acts—

'Some fragment from his dream of human life'—

and only by slow accretions comes to embrace accessories and relations. Thus the observer is often able to seize and record, in the simplest imitative effort, practically its whole scope and meaning. There is no motive but impulse, and there are no traceable connections; the curtain falls and the scene is at an end. Then—

'The little actor cons another part,'

which in its turn may be similarly recorded. So it happens that these records, by what at first seems their too fragmentary and disconnected form, really afford a true representation of a pronounced trait of early childhood, namely, the jerky, staccato movement of its activities. The development of a child's intelligence, like the ossification

of its bones, appears to begin at isolated points and to spread gradually until contact and continuity are slowly established."

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"The child is an apprentice. The art and mystery of life lie before him, no longer primitive and simple as in prehistoric ages, but developed and expanded into the thousand forms, usages, and institutions of modern civilization. These it is his task to learn and practice. And it is to this long and arduous undertaking that the infant, happily unmindful of its magnitude, applies himself betimes and with joyful and indomitable alacrity. He attacks the problem, as we have said, first, by resolute and manifold activity, beginning with the reflex and instinctive, which gradually merge into the purposive; secondly, by imitation and mimicry, also impulsive and fitful at first, and finally, as reenforcements of intelligence arrive, by more expanded and systematic games and sports, which eventually carry him to the threshold of maturity. This, in rough outline, is the sketch and plan of his procedure, which, indeed, is but a conforming to the necessities of his situation. The serious work of life is far beyond the powers and ken of a child. In physical ability and in understanding he must long remain a weakling and dependent. But he inherits a patrimony of instincts, and though he seems at first to squander this in many prodigal and aimless undertakings, he is thereby continually gaining valuable experience. He casts about for an opening into the attractive activities that he sees going on in the adult world around him, and, reckoning perforce with his immaturity and impuissance, straightway adopts, as the only profession possible to his small executive powers, the drama. The long-past achievements of his ancestors reverberate and tingle in his blood, impelling him to action; but all his efforts are ludicrously futile beside those of the giants about him and meet only with indifference or jeers. The world of law and order and systematic endeavor is too tough for his assimilation. It must first be softened into myth and make-believe by the solvent juices of fancy, which the glands of his little mind fortunately pour out in abundance. He can not live life; he must dramatize and play it. So he becomes an actor, an amateur in the good sense—

> 'Filling from time to time his "humorous stage"
> With all the "persons," down to palsied age,
> That Life brings with her in her equipage.'

Thus in imitative play, in obedience to the biologic law of recapitulation, the child epitomizes and rehearses the fundamental experiences of the race at the same time that he is sounding the depths and shoals of his own nascent powers, and thereby preparing day by day to take part in the real work of life which the coming years will bring. Play is thus seen to be at once reminiscent and anticipatory, a welding of the future to the past. This is the child's season of

apprenticeship, his Wanderjahre; it comes but once; nor is it easy to see how it could be essentially narrowed or abridged without entailing serious loss of that vital continuity and momentum which is the mainspring of human character and achievement. The welfare, not only of the individual, but of the race, demands the widest sweep and fullest play of this deeply rooted instinct, and any ideal or regimen of education that proposes or tends in the least degree to cut it short by meddlesome repression or substitution is little less than a crime against the race.

"A striking thing about the imitative play of children, as revealed on almost every page of the following records, is the way in which it is made to minister to what may be called the instinct or passion of self-exaltation, the restless and impatient craving of childhood to get beyond and above itself, to leap into the future, and assume the dress and ways of grown people. The actual status of the child, as I have said, is weakness and insignificance itself, and his real advancement is snail slow. But by laying hold, through imitation, of the adult activities around him, he seems to pull himself up where he yearns to be, becomes of consequence, at least in his own eyes, is 'transported beyond this ignorant present, and feels now the future in the instant.' The leverage thus gained is of signal advantage to the child, both as a source of present enjoyment and as supplying the needed spring and impetus to further improvement. Where this propensity is lacking, as usually in the case of the idiotic, there is no motive, and all progress is at a standstill. And it may be remarked, in passing, that school life, so far as it operates to check and restrict this spirit of imitation and play, annuls the most powerful of childish motives, and tends to reduce the pupil for a time to a stagnant and semiidiotic condition. The sway of the self-exalting disposition, though in general so salutary, does sometimes play into the hands of precocious development, and may, if taken seriously and seconded by parents and teachers, become one of the gravest of dangers, for it marks a tendency to revert to a lower and shorter cycle of growth. The sun should not go down upon any pronounced symptom of precocity in your child; let this be checked betimes, not by rebuke, but by the starving process of turning your back upon it."

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"We say, from the adult point of view, that little children are quick to see resemblances, and we ascribe this to their acuteness, but it is really the opposite; it is rather the obtuseness of undeveloped perception which fails to take note of the large escort of dissimilarities that, to experienced eyes, always accompanies and often obscures the features of likeness. To primitive observation a whale must always be a great fish; it is shaped like a fish, and it swims in the water like a fish, therefore it is a fish. To perceive in the whale a mammal demands eyes of a wholly different focus. The point I

wish to make clear is, that the eye which has once clearly discerned the mammal in the whale can never, or with the greatest difficulty, get back to the infantile adjustment, and behold again only the huge fish of former seeing. Once leave your low-vaulted past and you can not return; you will never more, except in fancy—

> 'Have sight of Proteus rising from the sea;
> Or hear old Triton blow his wreathèd horn.'

"The term fancy, from this point of view, comes to seem, in a sense, inapplicable to the first vision of the childish mind. It rather denotes the conscious effort, more or less abortive, of mature intelligence to throw off or divest itself of its acquired insight, and revert for simple delight to a naïve and unsophisticated mode of regarding things. When a little child looks at a mask, it is a veritable face that he sees; there is no fancy about it. What we see is painted pasteboard; if we want a face we must fancy it. Or take the case of theatrical representations. In order to enter into and enjoy these, we must first dispossess ourselves of our sophisticated understanding, and try to forget and lose the thought of what they are in what they seem. This involves the exercise of fancy proper. To the little child such an effort is not necessary or even possible; he takes it all for reality. A half-grown boy, backward for his years, asked in perfect good faith where they buried all the people who were killed in the theatres!

"These considerations suggest a pedagogical question of much moment, as to how early and how far what is called nature study or science teaching should be allowed to replace with conceptions of natural law the primitive or mythical way of viewing and interpreting phenomena. Whether there is not danger of dimming and impairing by enforced disuse this natural vision before the later insight of understanding is ready to take its place? To mix a diet of literature and science, of imagination and fact, in the right proportions for a child is no mean art, though there are not wanting practitioners who are more than willing to undertake it.

"I have a few words to add in closing with reference to the position and character of child study in general. I have my doubts, as intimated heretofore, whether children can best be studied on the lines and by the methods of psychology, unless it be a psychology of a distinctly physiological type; and even this appears to me inadequate in taking so little account of the influence of the social medium, for a child out of the environment of society would be not unlike a fish out of water. This is made apparent on every page of our records.

"I do not see how certain problems of psychogenesis can find any satisfactory solution except through the procedure of physiological psychology; but when its methods of investigation have been fully applied, and the student has finished his work with the child, important and fundamental as that work is, there remains still the child as

a social embryo whose development is to be traced along new paths and under widely different conditions of observation and induction. I doubt if this task is to be handed over to the psychologist of the schools, for the reason that his training, however sound and broad, has been gained by dealing with phenomena that manifest themselves in a plane quite above and apart from childhood. The appeal of psychology is mainly, indeed almost exclusively, to adult consciousness, to the civilized and moralized man—a very different sort of being from the little child. Introspection, which is the main instrument and reliance in this study as ordinarily pursued, is manifestly inapplicable, if it be not an actual hindrance, in affording a true view of the mental condition of children. The bias of the introspective habit leads us inevitably to interpret their acts and deliverances in terms of our own conscious states, which are at every step so unlike those of children, quantitatively, if not always qualitatively, as to be positively misleading. As Rousseau says, 'we are always looking for the man in the child, without thinking what he was before he became a man.'

"Psychology as such has no alternative but to regard the child as a little man, a homunculus; whereas the mere fact of its immaturity and the shifting proportions which its facilities bear to each other in point of relative development at successive stages should suffice to put it, as an object of study, in a category of its own. Landor says, with characteristic insight, 'Children are not men or women; they are almost as different creatures, in many respects, as if they were never to be one or the other; they are as unlike as buds are unlike flowers, and almost as blossoms are unlike fruits.' What, for example, can any adult discover in himself that explains the savagery of the boy or the doll passion of the girl? Imagine the mental attitude of a butterfly that should attempt by introspection to account for the voraciousness of the larva of its own species! There is more than growth in the change from infancy to maturity; there is metamorphosis, and that often of a character little short of cataclysmal. The instability of childhood, the continual change of its center of gravity that results from rapid and many-sided development, is such as to defy explanation by any reference to what the grown man, psychologist or other, can find by searching the recesses of his own mind. Every process and step whereby he has come to be what he is, everything that has contributed to make him an adult, has carried him farther and farther away from the condition of childhood, and the door has been closed behind him at each stage of his advance.

"The child is a child chiefly in this, that with him racial instinct stands in the place of individual experience. His motives are impulsive and immediate. His mental vision is of short focus, narrow field, and high magnifying power. His view of things is all foreground, with no perspective of time, place, causality, or any of the relations of natural or logical consistency. He has but the faintest

idea of probability or contingency. In his world, as in the world of dreams, all things are possible, and one event is about as likely to happen as another. Hence perhaps his instinctive credulity, one of the most attractive of childish traits. There is little distinction or detachment between things present, things remembered, and things imagined. In place of a disciplined and consistent will, he possesses but the fragments or segments of physiological reflexes and instinctive impulses, combining almost at random and acting with capricious inconstancy. 'A boy's will is the wind's will.' In his feelings alone does the child, like the higher animals, make a near approach to the adult type, though still with marked differences. Sensitiveness in general, and fear in particular, are very prominent. There is much of the same instability and fluctuation, and, owing to lack of inhibitory power, a tendency to passionate excess. The general current of feeling sets strongly in the direction of the ego, though varied by occasional eddies of altruism that constitute much of the charm of early childhood. I need not say that this presentation is but a sketch, and makes no pretentions to literal accuracy or completeness."

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"Children must be compared with children. And they should be studied chiefly in their gross and complex activities, not too analytically, and with constant reference to the social medium which is their natural element. As an object, a child should be held at a good focal distance; bring it too near the eye, and it becomes an unintelligible blur. Hence a certain clarified common sense, that takes account of the ensemble of conditions, is a better outfit for child study than a vision which the scientific habit may have rendered too intensive and microscopic. And in our interpretative comparisons, as has been hinted, it is better to direct the view downward than upward, even to the extent of classing children at first with savages or with animals, rather than with the fully developed man. I am glad to find this opinion supported by so high an authority as Professor Preyer, of Berlin, who, as a distinguished man of science, will not be suspected of inclining too much to the popular side. He says, in the preface to his 'Mental Development of the Child' (p. xvii, Brown's translation): 'Although the little child shows himself to the observer always without the least dissimulation—unveiled in both the literal and the figurative sense of the word—still there is great danger, with the anthropomorphic tendency of most people in their way of looking at things, that more will be attributed to the child than actually belongs to him. Moreover, knowledge of mankind is not of much help here at first, because everything which at a later period comes forth, obscurely or openly, is now present only in the germ. On the other hand, the observation of untrained animals, especially young ones, and the comparison of the observations made upon them with those made upon little children, have often been found by me very helpful toward

an understanding of children; and I hope from the completion of a comparative psychology, together with the inauguration of psychogenetic observations, more results than from the prosecution of earlier psychologies of a more speculative sort.'"

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"Finally, it should ever be borne in mind that the study of children has wider and richer interests than those of psychology or pedagogy or any mere science. It touches 'the human heart by which we live.' It is worthy to stand, and it ought to stand, by itself. Its methods are for the most part yet to be devised, and the fullness of its outcome is not at present to be foretold or foreseen. I believe it holds the largest possibilities of delight, of increase of knowledge, and of practical utility. Yet its highest ideal, to my thinking, is simply enjoyment of childhood through sympathy and insight, without any ulterior purpose whatever."

CHAPTER XIV.

DISCUSSION OF EDUCATIONAL TOPICS BY PRESIDENT FRANCIS A. WALKER, OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, WITH SOME ACCOUNT OF HIS LIFE.

The sudden death of Gen. Francis A. Walker removed from our midst one of the most influential and forceful men identified with educational interests. His personal attractions, scholarly attainments, versatile ability, and strong convictions brought him to honor in many departments of public and scientific activity.

The merest outline of his valued career is enough to indicate a man of rare powers. The principal events of his life are thus summarized in the Quarterly of the American Statistical Association March, 1897:

Gen. Francis A. Walker was born in Boston July 2, 1840. He was graduated at Amherst College in 1860, and entered upon the study of law. At the outbreak of the civil war he immediately enlisted and served during the larger portion of the war as an adjutant-general. At the close he was made brigadier-general by brevet.

After his military service, President Walker became instructor in Latin and Greek at Williston Seminary, and in 1868 was engaged upon the editorial staff of the Springfield Republican. In 1869 he was appointed by President Grant to take charge of the Bureau of Statistics, Treasury Department, Washington; and at the age of 30 (in 1870) he was made Superintendent of the Ninth Census. In 1872 he was Commissioner of Indian Affairs. From 1873 to 1881 he occupied the chair of political economy and history at the Sheffield Scientific School. In 1876 he was selected to be chief of the Bureau of Award of the Centennial Exposition. While at the Sheffield Scientific School he was a member of the school committee of New Haven and of the board of education of Connecticut, showing at this time the active interest in public school education which he never lost. He was a lecturer at Johns Hopkins University from 1877-1879. In 1878 he was called upon to represent the United States in the Monetary Conference at Paris. In 1878 he became a member of the National Academy of Sciences, and was vice-president of that body from 1890 until his death, and, in the absence of Dr. Gibbs, presided over its last meeting in November, 1896. When the time for taking the Tenth Census arrived, President Walker was appointed to superintend that work. The Census of 1880 was a greater undertaking than any preceding census, and more than twenty volumes was the outcome of the plan. This work established the reputation of President Walker in Europe as a statistician of the highest order.

General Walker became president of the Massachusetts Institute of Technology in 1881. In 1883 he was made a member of the Massachusetts Historical Society. From 1882-1890 he served as a member of the Massachusetts Board of Education, and as a member of the school committee of Boston from 1885-1888. In 1882 he

was elected president of the American Statistical Association, a position which he held until his death. President Walker became a member of the International Statistical Institute in 1885 (honorary member and president adjoint, 1893). From 1884–1890 he was chairman, Massachusetts Topographical Survey Commission. In 1882, 1883, and 1896 President Walker lectured at Harvard University. From 1885 to 1892 he served as president of the Economic Association. In 1888 he was made correspondent of the Central Statistical Commission of Belgium; in 1889 an officer of the French Legion of Honor, and in 1893 a correspondent of the Institute of France. He was president of the Massachusetts Military Historical Society from 1891. From 1892, he was vice-president of the American Society for the Promotion of Profit Sharing. From 1892–1894, President Walker served his native State as chairman of the Massachusetts Board of World's Fair Managers. He became a corresponding member of the British Association for the Advancement of Science in 1894. Besides serving Boston as a member of the school committee, President Walker was a member of the Art Commission from 1890, a trustee of the Museum of Fine Arts since 1887, member of the Park Commission from 1890 to 1896, and a trustee of the Public Library from May, 1896, until his death.

Of Dr. Walker's distinctive work as an educator, Dr. Davis R. Dewey writes as follows:[1]

There is a close association between his social and economic philosophy and the principles of education which he advocated. In education he stood for manual training, the kindergarten, and cooking and sewing schools for the mass; and for those who had the aptitude, technical training of a higher order, not only for its own sake as an educational factor, but as a conserver of the industrial and economic forces of the nation which now go to waste or wreck. Such training is a bulwark to the laborer in helping him to resist pressure and thus make competition a force working for good instead of for destruction. His views on the general educational value of manual and technical training have been repeated again and again in public addresses, and may be found briefly summarized in print in "A Plea for Industrial Education in the Public Schools" (Boston, 1887), and in an address delivered before the convocation of the State of New York, 1891, published in volume 4 of the Technology Quarterly.

Mr. Walker took an earnest interest in public-school education. During the period that he was connected with the Sheffield Scientific School he was a member of the Connecticut State Board of Education and of the municipal school committee of New Haven. When he came to Boston this interest in public school education was continued. He was a member of the State Board of Education of Massachusetts from 1882 to 1890. In this connection he was especially interested in making the normal schools truly professional. His influence was particularly felt in behalf of better laboratories, gymnasiums, and hand work. As a visitor at Wellesley College his influence was felt in the shaping of the scientific departments. He was a member of the Boston school committee from 1885 to 1887, and here made his spirited attack upon the teaching of arithmetic, and was instrumental in securing a reduction of the amount of time given to this study and a rationalizing of the instruction.

His chief glory, however, in education was his administration of the Massachusetts Institute of Technology, to which he was called in 1881. Over this he exercised a judicious, intelligent, and progressive administration. The wise plans of its founder, President Rogers, were developed and no error was made to check its growth. During this period of fifteen years the number of students increased from 302 to 1,198. Five new department courses have been added—electrical

[1] In the Review of Reviews, February, 1897.

engineering, chemical engineering, sanitary engineering, geology, and naval architecture. Instead of one building there are now four. There has been a wise recognition of the independent organization of the various departments, with, however, a beneficial coordination at all necessary points. He has supported a generous recognition of the study of language and literature, history and political science, as essential to a harmonious training of the engineer.

His work at the institute, however, should not be left without reference to his relations to the student body. These were indeed unique. Although giving no instruction, and never meeting the students in a class save possibly some two or three times a year when called upon for a special lecture, yet he knew, I think, every man of the graduating class each year, and could also address by name scores, if not hundreds, of other students of the school. He had their complete confidence and admiration. He never addressed the students on questions of discipline, for such questions did not arise under his administration, but every student with whom he came in contact—and scores saw him at one time and another in his office—felt an inspiration in personal contact, and by the unconscious influence of the manliness of their president.

President Walker's address on graduation day, in presenting diplomas, was brief, but always heard with eager interest. It was a message burdened with warm gratulations for the completion of a long course of laborious and honorable study and achievements. The student who heard it felt anew that he had been a worker, had lived with workers, and with earnest endeavor would go on through life a worker. It was honest and manly toil that counted.

Hon. Carroll D. Wright, in a commemorative address before the American Statistical Association, said:

It may be that we shall conclude that the most monumental work undertaken by President Walker was the administration of the affairs of the Massachusetts Institute of Technology. I have spoken of his equipment for that position. His experience at Williston and at Yale confirmed him in his estimate of a sound, practical education. Never ignoring the classics, always broad enough to appreciate and foster all that belongs to a college of the liberal arts, he, nevertheless, understood more thoroughly than most educators fifteen years ago the real necessity of the most complete scientific education. He therefore entered upon his duties in the institute with more than the ardor of an educator, for he had but little to do with teaching as such. His breadth of mind enabled him to understand the needs of the institute, and his great administrative abilities made him familiar at all times with all the features of the various curricula. His innovations were of the very greatest help to the young man seeking to equip himself for his life contests. He never believed in giving diplomas to men who had simply stayed the required time in the institution over which he presided; but when a young man was not competent to take the full course, or through ill-health or other adverse conditions was obliged to drop out of some of the departments, he gave him every opportunity to secure a special certificate in some one branch. By this means he has sent out into the world men often without a diploma to be sure, but thoroughly competent to take charge of work intrusted to them. We all know many of these young men,—we know their success; we know their loyalty to President Walker. He was their friend always, and at all times ready to aid with his advice and assist materially with his recommendations. While carrying the student roll of the institute from 302 to 1,198 during his incumbency of the presidency, he raised the standard of the school in like proportion. The graduates of the institute are found everywhere, and, so far as my own knowledge is concerned, always with the same result as to their standing and their efficiency.

It must be admitted that as an educator in the very highest sense President

Walker had no superior, and with that rare faculty of acquiring a personal relationship to each student his influence has never been surpassed, except it may be in the case of Mark Hopkins.

Dr. H. W. Tyler, one of Dr. Walker's associates in the institute, thus characterizes his distinctive power as an educational leader:

Some have won fame in education by profound research in the philosophy or history of pedagogics, some by assiduous labors in promoting the material welfare of schools or colleges, some by their skill in swaying the feelings and opinions of learned or legislative bodies. In none of these directions lay President Walker's greatest strength.

He was preeminently a leader, preeminently a leader of young men. His soldiers fought with his courage, his students studied with his insight, his associated teachers taught with his enthusiastic, vivifying zeal. He knew young men, he rejoiced in young men, and his knowledge was power over them and power in them. With most intimate sympathetic acquaintance with their qualities he always judged them with abounding charity. The earnest student, without ever exchanging a word with the president, felt for him the cordial confidence of a younger brother. Even the inveterate shirk, coming to him perhaps for censure, was uplifted by his generous optimism, gaining self-respect and becoming for the time, at least, as earnest as his fellows. With his nearer associates and friends he had that sunny cordiality which radiates light and warmth, but which so rarely survives the stress and strain of toilsome middle life.

The earnestness characteristic of institute students made President Walker's work with them peculiarly congenial, and he, on the other hand, enriched them by holding up earnestness as good in itself and as good for other purposes as well as for the primarily interested object of self-advancement. The institute was always to him "a place for men to work and not for boys to play," yet with their less serious side of life—their publications, their societies, and, notably, their athletics, none had keener sympathy than he. Young manhood was admirable to him in its physical as well as in its mental perfection.

His own intense activity and his insistence in earnest work have at times exposed him to misconception. It has been said that "the one intent and aim before him in his building up of the Institute of Technology was to make the course so vigorous that only the strongest could hope to complete it. It was an institution where men went to equip themselves for life work, not a hospital for the treatment of mental weaklings." The second sentence needs no confirmation, the first is altogether misleading. He was sensitive, almost to excess, on the subject of mental overwork by students. The faculty of the institute sets a definite, well-understood limit to the work to be required of any regular student in any term. Time and again he took pains not merely to enforce this rule, but to call the attention of overzealous teachers to its importance. Time and again he cautioned students against attempting even so much, if beyond their strength. Quality of of work, not quantity, was his requirement, as it was that of the faculty. The fact that institute students are thrown so fully on their own responsibility makes it possible for some to overwork, for others to neglect their work; he desired as little the former result as the latter.

As an administrator, President Walker sought always to lead rather than to drive, to win assent rather than to compel acquiescence. Perhaps because he had known war, he avoided even verbal antagonism in time of peace. His courage of opinion may not be questioned, but he knew and he taught others that much truth need not be hastily spoken. Neither in the faculty nor corporation of the institute was there lack of diversity of opinions and interests. His aim was always to secure harmonious action or else inaction until harmony should come.

Of teaching, in the strict sense of the word, he had in later years relatively little. The classes of his earlier time in Boston were fortunate in hearing his lectures in political economy, given to all regular students in their third year. Which one of them can forget, however helpless of memory as to theories of rent and wages, the affluence of illustration, the luminous exposition which, without sacrificing an iota of thoroughness or impartiality, removed mountains from the pathway of the faithful? To his temperament it was impossible to reduce economics to the metaphysical formalism of those who had made it a "dismal science." The "economic man" was to him not merely a vague abstraction, but a mischievous device for making the unreal have the semblance of the true.

If not a discoverer of new principles of education, or an exponent of a particular philosophy, of certain great fundamental principles he made enormous use.

The reaction of the new education against the old had no more marked, no more beneficent element than the great development of the study of things as distinguished from the study of books. Of the necessity, the dignity, the distinctly educational value of this study, President Walker was an unwearied champion. So, in his report of 1886, he says of the last graduating class of the Institute:

"Those years had been spent in the work, not of decoration, but of construction; not in polishing the surface, but in building up the substance of mind and character. Little time or thought had been expended in memorizing facts previously ascertained, or in rehearsing the opinions of others; but from the first day's exercise in the laboratory of general chemistry, on through all their course, these young men had been taught to see with their own eyes and think with their own minds, weighing, probing, analyzing, testing for themselves, the substances and appearances which formed the subjects of their study, until, through the development of their perceptive powers, through the formation of a habit of careful, discriminating, and minute observation, and through the exercise of the faculty of judgment, the least gifted of them had become capable, as evidenced by the severe test of our thesis requirement, of selecting a field of investigation, isolating the subject-matter, eliminating for the time everything alien or adventitious, providing all the conditions of a true experiment, and, through the application of approved tests, making an actual contribution to human knowledge. This is what we deem education in the best and fullest sense of that term."

THE RELATION OF MANUAL TRAINING TO CERTAIN MENTAL DEFECTS.[1]

The full title of my paper is manual training as an agent in the diagnosis and treatment of certain mental defects; but that statement exaggerates the importance of the paper, since what I shall have to say on the subject is merely in the nature of suggestion and inquiry. I have, in fact, no results to announce, no formed conclusions, even, to express. My mind has been drawn within the last few years to certain phenomena which appear to intimate the probability, first, that mental defects, seriously interfering with progress in study and with success in the affairs of life, may exist without being suspected by parents, teachers, or play and school mates; secondly, that such defects do in fact exist far more frequently than is popularly supposed. Brought to these conclusions, it has seemed to me that manual training or the practice of the mechanic arts as a means of instruction, while useful in the case of students of normal minds and of the best abilities, may have an additional and most important use as an agent, first for discovering, and then for treating, these defects. Let me ask your attention, some-

[1] Read by General Walker before the American Institute of Instruction, July 9, 1895.

what at length, to incidents which have suggested the probability that parent and teacher and play or school mate have often to do with wholly unsuspected defects of mental constitution and organization.

A few years ago I was called upon to act as the chairman of a committee to examine candidates for West Point, in one of the Congressional districts of Massachusetts. The thirteen candidates were subjected to the usual examination for physical soundness; and all satisfactorily passed the test. When we came, however, to the test of color blindness, a young man whom I had remarked as one of the most spirited, intelligent, and fine-looking of the group, advanced to the table and threw the skeins of colored worsted into groups so absurd as to seem actually impossible. One moment sufficed to show that he was wholly out of the competition and entirely ineligible for military service. Here was a young man, evidently of more than usual intelligence and ability, who had gone to the age of 17 or 18 without any suspicion on his own part that he had not the normal sense respecting color. His parents and the other members of his family from childhood had been accustomed to observe him in his dealings inside the house with colored objects; his playmates had doubtless on countless occasions made reference to the color of objects; and yet he had gone through all this, day after day and year after year, without having his suspicion excited that what they saw he did not see, and he had taken the trouble to prepare himself for an examination the results of which might affect his whole life without the faintest apprehension of his disability. I remember to have heard of a naval officer who went through the war and was afterwards discharged from the service for a long unsuspected color blindness which was almost total; yet for years he had been dealing with color signals and colored flags and ensigns. It is well known that the color tests introduced by boards of railroad commissioners in several States have resulted in throwing out not a few locomotive engineers of large experience who had never discovered or suspected their deficiencies.

Take another instance: A gentleman came to my office to introduce his son as an applicant for admission to the Institute of Technology. The young man had received an appointment to the Naval Academy at Annapolis; had passed the text-book examination; had passed the ordinary physical examination; had gone through the test for color blindness; and then it was found that an object which he could see distinctly with one eye at the distance of 27 feet had to be brought within 8 feet to be seen at all with the other eye. During all his childhood and boyhood he had never for a moment suspected the existence of this defect. Let me recite still another case: A lady of my acquaintance had very charitably taken into her household as a servant a young woman who was subject to severe nervous disorder. She could get employment under no ordinary circumstances, and the lady I referred to had undertaken to carry a part of her burden by employing her. After the lapse of some weeks this lady, who had often observed the servant very closely and curiously when engaged at her work, especially while sewing, broke out with an exclamation, "Jane, do you really see anything?" The girl looked up in great surprise. "Why, yes; I see perfectly well." Her mistress rejoined, "I do not believe that you see anything as we see it." An examination by an oculist followed, and it was ascertained that the girl's entire disorder proceeded from eyes that were simply a mass of defects and distortions. With treatment of her eyes the nervous affection in time ceased. I related this to one of the most distinguished medical men in New York, for many years a professor in the College of Physicians and Surgeons, who rejoined, "There are many such cases. My son, a captain in the United States Army, for years suffered the greatest agony from pains in his head and the back of his neck before he discovered that the whole trouble was due to defects of vision."

I might go on for a long time enumerating instances which have come under

my observation of a similar character; but what has been said will suffice to justify the inquiry whether, if such defects in such degrees can exist in respect to matters so objective and so completely open to observation and to examination, is it not probable that defects of mental constitution and organization of the gravest nature are found in every schoolroom and in every large family, and that much of what the parent or the teacher takes to be the result of indifference, or willfulness, or neglect is due to mental distortions, perversions, obliquities, lesions, and breaches of continuity, which have as distinct and decided an effect in preventing the proper and normal action of the child's mind upon what is sought to be presented to it as would the most objective deficiencies and injuries to the organs of sense. If parents and teachers and playmates and schoolmates can fail through years to see, or even to suspect, the existence of color blindness, for example, is it not possible, and even highly probable, that defects more deeply seated and of a more obscure character are the cause of no small part of the failures of the schoolroom?

Here is a child whose sense of hearing is seriously impaired. It is known that such deficiencies have existed for years without being suspected. In connection with the preparation of this paper a Boston physician has told me of a case recently coming under his knowledge where a young man had gradually become almost totally deaf through the slow process of the disease called adenoids, without his father, a practicing physician, suspecting the existence of the trouble until a late stage of the deafness had been reached. Now, in the case of such a child, whatever is said loudly and distinctly is heard. The moment the teacher's voice drops below a certain point, or her back is turned, or her speech becomes hurried and confused, the child loses all or a part of what is said. Something he makes out—perhaps by suggestion from what he has caught, perhaps by observations of the teacher's lips or gestures; some other thing he drops entirely; a third thing, still, he gets wrong. The result is partial failure in his work. He does not understand the true cause. His teacher does not suspect it. In the same way there must be instances of mental defects where a more than usual effort on the part of the teacher, a more than usual degree of attention on the part of the pupil, enables the current of thought to jump the broken wire and pass to its object; but any slackening of effort on the part of the teacher or of attention on the part of the pupil allows the current to become dispersed and to remain without effect.

It is not for a moment supposed that the thought above presented is not familiar to all students of the mind and all teachers of youth. The only contribution, if any, which I can hope to make is in urging the consideration that such mental defects as correspond to the defects in the organs of sense, of which illustrations have been given, are vastly more frequent than we have been accustomed to believe and demand greater attention from us in dealing with individual pupils; and secondly, that we have in manual training an agent for a diagnosis of some, at least, of these defects, and, though doubtless in a lower degree, for treating them. We go into an orthopedic hospital and our very souls are torn with the spectacle of distortion and perversion and deformity which we there witness on every hand, but we comfort ourselves by saying, "Thank God, it is only one child in a hundred who is thus afflicted." For my part, I believe that the cases of mental distortion, perversion, and deformity are far, far more frequent, and I can not help believing that it is to such unsuspected disabilities and infirmities of the pupil that we owe a very large part of the failures of the schoolroom, which pass for instances of heedlessness, willfulness, and even positively bad purpose. If I am wrong in this, as I easily may be, then I have occupied your valuable time and attention to no purpose; but the matter has so strongly forced itself upon my thought as to compel me to give utterance to it here and to ask this great body of practical teachers, as well as students of pedagogics, whether the subject is not deserving of special investigation and inquiry.

If, indeed, it is reasonable to believe that defects of mental constitution and organization corresponding to defects in the organs of sense do exist in regard to any large part of our school children, then it seems to me clear that we have in manual training so called—that is, the systematic practice of the mechanic arts in connection with drawing as a means of school instruction—a very important agent, at least, for their discovery.

If to the traditional studies we add manual training we have not only another test of application and capacity—a thing in itself of great importance, inasmuch as, by bringing in a new kind of test, we may largely correct the errors of the test afforded by text-book studies merely—but we have a test peculiarly suited to bring out the cause of any degree of failure in the performance of work. In the first place, the results of good or bad work with tools and upon materials can be measured, and gauged, and "sized up" with an accuracy which is not attainable in estimating the character of the work done in most of the traditional studies of the schoolroom. The teacher can see exactly in what degree the child has failed, and the child can see it for himself, which is far from being always the case with recitations and examinations. Not only so, but the teacher, as I believe, finds out much more closely the cause of failure in such work. If there is any tendency to misunderstand instructions and directions; if there are any defects in the child's organs of sense or any broken wires in his mind, a penetrating teacher ought to be able, by repeated experiment, to ascertain the fact. The objective character of the work, the closeness with which the results can be measured, and gauged, and criticised, and especially the aid derived by the teacher from the fact that the pupil is almost invariably desirous, and desirous in a high degree, of doing his shop work perfectly, all these combine, it appears to me, to make certain that a child will not pass through any very long course of study in a school where such exercises are systematically conducted without the discovery of any physical or mental defect which may exist. I do not mean to say that in all cases, or even in the majority of cases, the seat of the trouble will be precisely hit upon; but at least enough will be learned to give the pupil fair warning that he does suffer from some disability which he must make special effort to overcome. At least enough will be learned to put pupil and teacher in a better relation of mutual understanding and mutual respect.

Should the manual-training exercises disclose defects of mental constitution and organization, I believe that these same exercises may be used by the teacher most directly and beneficially in the treatment of such defects. Even though the teacher should not be so gifted as to be able to make the pupil's work discover the cause of total or partial failure, or of special weaknesses or infirmities, I still believe that the mere practice of the mechanic arts is the best possible regimen and gymnastic to which a mind in any degree falling off from the normal or suffering from any perversions or deformities can be subjected. What orthopedic surgery is to the body such, I believe, manual training in childhood is to the mind. I care comparatively little for its influences upon eye or hand. Its chief work, in my view, is educational; and in that educational work I place foremost its power of rectifying the mind itself, of straightening the crooked limb, so to speak, of strengthening the weak joint, of healing the lesion which, if not cured, will proceed to deep and irreparable injury. Not one of us but has seen seemingly hopeless cases of deformity and weakness in childhood completely cured by the splints, the massage, the fomentations, and the heroic surgery of the orthopedist. As I write I recall the images of schoolmates and playmates doomed apparently to hopeless suffering and weakness who are to-day, by reason of such treatment, straight, vigorous, and comely beyond the standard of their race. A benefit similar, at least in kind, can, I believe, be wrought in the case of many children who enter our schools suffering from inherited and acquired defects of mental constitution and organization by the judicious and intelligent use of the mechanic arts as educational

instruments. I am not here and now speaking for the more gifted and fortunate of our pupils, though entertaining the strong conviction that manual training properly applied in schools, freed from the crudities and errors incidental to the introduction of any new system, will prove of great educational benefit to the brightest and best of our scholars. I am speaking for a great body of children who, but for this new instrument of education in the hands of intelligent and skillful teachers, may go into life with serious mental defects uncorrected and even unsuspected; defects which will grow more serious and more hopeless with the progress of time and with experience of life.

THE EXTENSION OF TECHNICAL EDUCATION.[1]

The growth of scientific and technical schools on this continent during the past thirty years has savored of the marvelous. In part it has been due to the changed ideas and the transfigured ideals of the American people; in part to the recognized need of greater skill and more of scientific knowledge for the development of the natural resources of the continent and for the direction of its growing enterprises. In this movement of the age even the older institutions have been compelled profoundly to modify their traditional courses of study, substituting scientific and even technical instruction for much that was formerly deemed essential to a liberal education.

Of the reluctance, and even resistance, which this movement has encountered from many who deservedly held high places in the old educational order, I would not speak with harshness. The notion that scientific work was something essentially less fine and high and noble than the pursuit of rhetoric and philosophy, Latin and Greek, was deeply seated in the minds of the leading educators of America a generation ago. And it has not even yet wholly yielded to the demonstration offered by the admirable effects of the new education in training up young men to be as modest and earnest, as sincere, manly, and pure, as broad and appreciative as were the best products of the classical culture, and, withal, more exact and resolute and strong. We can hardly hope to see that inveterate prepossession altogether disappear from the minds of those who have entertained it. Probably these good men will have to be buried with more or less of their prejudices still wrapped about them; but from the new generation scientific and technical studies will encounter no such obstruction, will suffer no such disparagement.

Another objection which the new education has encountered is entitled to far more of consideration. This has arisen from the sincere conviction of many distinguished and earnest educators that the pursuit of science, especially where its technical applications are brought strongly out, loses much of that disinterestedness which they claim, and rightly claim, is of the very essence of education. For the spirit of this objection I entertain profound respect. I only differ from these honorable gentlemen in believing that the contemplated uses of science, whether in advancing the condition of mankind or even in promoting the ulterior usefulness, success, and pecuniary profit of the student of a technical profession, do not necessarily impair that disinterestedness which I fully concede is essential to the highest and truest education of the man. These gentlemen appear to me to have an altogether unnecessary fear of the usefulness of science. They entertain much of that dread of "Fruit" which Macaulay, in his famous essay on Bacon, doubtless with something of exaggeration, as his custom was, attributed to the old philosophers.

I am willing to admit that, in my humble judgment, many technical schools

[1] Remarks by General Walker at the dedication of the new science and engineering buildings of McGill University, Montreal.

have erred in addressing themselves too closely to the practical side of instruction; that they have in some degree neglected principles in the study of science, and have borne an undue weight upon mere knacks and labor-saving devices and technical methods. I believe that in doing this they have made a mistake, even from their own point of view, and with reference to the very objects they profess. Moreover, I am free to acknowledge that those who direct many technical schools have made a mistake in altogether, or nearly so, omitting from their curriculum philosophical as distinguished from scientific, liberal as distinguished from exact studies. Those technical schools will best accomplish their purposes of usefulness, alike to their students and to the State, which make more of the sciences than of the arts, more of principles than of their applications, and which offer to their pupils, in addition to the studies which will make them exact and strong, some of the studies and exercises which will help to render them at the same time broad and kind.

With only such a subordination of technical and scientific studies as is for the ultimate advantage of the technical professions themselves, and with such a complementing of scientific by philosophical studies as has been indicated, I believe that the work of the student in schools of technology is as fully entitled to be termed disinterested as that of a student in a classical college. In neither class of institutions can or ought the student to be unmindful that his personal success in life and his professional and social position are largely to depend upon the manner in which his work shall be done in college. All that can be asked in regard to any school is that there shall be zeal in study, delight in discovery, fidelity to the truth as it is discerned, high aims, and ambitions which have not sole or primary respect to material rewards. The strong desire to become a useful man, well equipped for life, capable of doing good work, respected and entitled to respect, constitutes no breach of disinterestedness in any sense of that word in which an educator would be justified in using it with commendation.

The practical uselessness for any immediate purpose of a given subject of study may be no reason why it should not be pursued; but, on the other hand, the high immediate usefulness of a subject of study furnishes no ground from which the educator of loftiest aims and purest ideals should regard it with contempt or distrust. In either case, the question of real import is in what spirit the study is pursued. The most distinguished French writer of to-day on matters of education, writing, too, in advocacy not of physical but of social science, has frankly paid his tribute to the disinterestedness of spirit and loftiness of motive which promote and direct scientific research, even in its most practical applications. "Let us," he says, "pass in review the great founders of modern science and the creators of industry, the Keplers and the Fultons, and we shall be struck by the idealistic and even Utopian tendency peculiar to them. They are, in their own way, dreamers, artists, poets, controlled by experience."

And if, leaving abstract reasoning, we turn to contemplate the manner in which the several professions are practiced in the community, I seem to find corroboration of the view that the study of science and its application to the arts of life do not tend to produce sordid character or to confine the man merely to material aims. Every profession has its black sheep and its doubtful practitioners; but, while frankly admitting that there are mercenary physicists and chemists for revenue only, I boldly challenge comparison between the scientific men of America, as a body, and its literary men or even its artists, in the respects of devotion to truth, of simple confidence in the right, of delight in good work for good work's sake, of indisposition to coin name and fame into money, of unwillingness to use one thing that is well done as a means of passing off upon the public three or four things that are ill done. I know the scientific men of America well, and I entertain a profound conviction that in sincerity, simplicity, fidelity, and generosity of character, in nobility of aims and earnestness of effort, in everything which

should be involved in the conception of disinterestedness, they are surpassed, if indeed they are approached, by no other body of men.

Let us, then, cheer on every enterprise for the extension of scientific and technical education, without any misgivings as to its effects upon the character and subsequent life of the young men of America, without any fear that they will be rendered sordid in spirit or low in their aims by reason of the practical usefulness of the studies to which they are called to apply themselves. There is a wonderful virtue in the exact sciences to make their students loyal, just-minded, clear-headed, and strong against temptation. Here no insidious tendencies to mere plausibility, to sophistry, and to self-delusion beset the young and the ambitious. The only success here is to be right. The only failure possible is to be wrong. To be brilliant in error here is only to make the fact of error more conspicuous and more ludicrous. Nothing but the truth, nothing less than the whole truth, this is the dominating spirit of the laboratory, which never withdraws its control over the student to keep him from the false path, which never intermits its inspiration as it urges him onward to the light.

COLLEGE ATHLETICS.[1]

I trust it will not be deemed beneath the dignity of this occasion that I should ask your attention to a few thoughts regarding college athletics. No theme is to-day of greater consequence to the colleges and universities of our land, whether as influencing school discipline or as affecting the standard of scholarship. Alike those who applaud and those who deprecate the growth of athletics must admit the importance of the subject.

The past ten years have witnessed a remarkable development in the direction indicated, which we may well pause to consider. The rising passion for athletics has carried all before it. Thus far, at least, there is no sign of reaction, or even of the exhaustion of the forward impulse. Honors in football, in baseball, and in rowing have come to be esteemed of equal value with honors in the classics, in philosophy, or in mathematics; and if the movement shall continue at the same rate it will soon be fairly a question whether the letters A. B. in the college degree stand more for bachelor of arts or for bachelor of athletics.

Among instructors and the governing bodies of our colleges there is a wide difference of sentiment on the subject. Some applaud, some doubt, some disapprove; others are simply dazed and know not what to think, or suspend all judgment waiting to see how much farther the rising tide will encroach upon the shore. In the larger community there is, perhaps, an even more pronounced divergence of opinion. Few college presidents or professors but see some good in the new movement and sympathize largely with the enthusiasm of their pupils. But there is a host of editors, preachers, and men of affairs in the outside world, and a host of parents and guardians more directly concerned, who are sure that it is all of evil; that the colleges are simply going wild over athletic sports, preparing the way for the downfall of the traditional system of education. To many of these it is a monstrous thing that large bodies of young men should give themselves up to contests of skill and strength, and that larger bodies still should find in these contests the chief interest of their college life.

Fairly to approach the subject, we need to consider the state of things which existed prior to the war of secession; in other words, to go back just one human generation, as a human generation is usually computed. In those days gymnastics held but a small, a very small, place in American colleges; while throughout the wider community there was almost no athleticism. The two most important exceptions to the latter statement were found in the occasionally outlawed and

[1] An address by General Walker before the Phi Beta Kappa Society, Alpha of Massachusetts at Cambridge, Mass.

always disreputable prize fight, generally with some international complication, genuine or manufactured, for the sake of stimulating public interest, and in a small amount of rather poor, unscientific boat racing. Almost no honor was then given to a young man because he was strong, swift, courageous, or enduring. The college hero of those days was apt to be a young man of towering forehead, from which the hair was carefully brushed backward and upward to give the full effect to his remarkable phrenological developments. His cheeks were pale, his digestion pretty certain to be bad. He was self-conscious, introspective, and indulged in moods as became a child of genius. He had yearnings and aspirations, and not infrequently mistook physical lassitude for intellectuality, and the gnawings of dyspepsia for spiritual cravings. He would have gravely distrusted his mission and his calling had he found himself at any time playing ball. He went through moral crises and mental fermentations which seemed to him tremendous. From the gloomy recesses of his ill-kept and unventilated room he periodically came forth to astound his fellow-students with poor imitations of Coleridge, De Quincey and Carlyle, or of Goethe in translation.

Not all college heroes of those days were of this familiar type. Sometimes they were thunderous orators, more Websterian than Webster, who could by a single effort lift themselves to the full height of perorations which in the senate or the forum are the culmination of great arguments and of many a passionate appeal. Sometimes, though more rarely, the college hero was a delightfully wicked fellow, who did, or at least affected to do, naughty things, wrote satirical verses, was supposed to know life, and in various ways exerted a baleful fascination over his fellow-students. But, however the type of the college hero might vary, speech-making, debating, or fine writing were the be-all and the end-all of college training, as in the world outside the colleges speech-making, debating, or fine writing were the sole recognized signs and proofs of greatness. Physical force, dexterity, and endurance, capacity for action, nerve, and will power went for little, or went for nothing, so far as public admiration was concerned. Statesmanship itself was perverted by eagerness to seek occasions for oratorical display. Men of business, men of affairs, men of prudence, moderation, and real ability were crowded out of our legislative halls by shrill-voiced declaimers who could catch the ear of a nation given over to the lust of words. "Sir," once said Daniel Webster, bending those tremendous brows upon a young man afterwards renowned among the great Attorney-Generals of the United States, "sir, the curse of this country has been its eloquent men."

What was the reason for this state of things regarding the college ideals of a generation ago, so strongly contrasted with what we see to-day? In part, bad physiology, or the absence of anything that could be called physiology, was responsible for it; but in greater part I believe it was due to the transcendentalism and sentimentalism of the last quarter of the eighteenth and the first quarter of the nineteenth century, which had created false and pernicious opinions concerning personal character and conduct. There was more than indifference, there was contempt for physical prowess. A man who was known to be specially gifted in this way was thereby disparaged in public estimation. If he were known to make much of it, he was more likely to be despised. It was taken for granted that he could not be good for anything else. Brains and brawn were supposed to be developed in inverse ratio. Affected notions about intellectuality and spirituality had almost complete control of the popular thought. The only things to be admired were mind and soul. "Mere bigness" was a favorite phrase of contempt. Strength was believed to be closely akin to brutality. Danger, positive danger, to spirituality, if not also to morality, lay in physical force and exuberant vitality. The same notions perverted the ideals of womanly grace and beauty. Robust vigor, a hearty appetite, and a ruddy complexion would have been deemed incom-

patible with the function of the heroine of a popular novel or a sentimental poem, or even with the part of a belle in society. Languor and pallor were attractive; delicacy of frame and limb was admired.

The set of notions referred to were doubtless closely connected with the political ideas of those days. It was an era of transcendentalism in politics. Political mechanism was disparaged. The philosophy of the age declared that a virtuous people would of themselves make a good government. On the other hand, it was impossible so to organize the public force as to give the people a government that should be better than themselves. The maxim "A stream can not rise higher than its source" was a conclusive answer to all pleas for the scientific treatment of political problems. There was an affectation of indifference toward size and numbers in national life. Quality, not quantity, was in the eyes of the men of those days the sole test of the worthiness and the greatness of a people. Mass went for nothing. "Mere bigness" was here, as in the case of the individual, a term of infinite contempt. I never shall forget the rebuke, not unkindly meant or harshly spoken, which I received from a distinguished leader of public thought for boasting in a boyish vein about the extent of my country and the greatness of its resources.

The indifference toward or the dislike of athletics a generation or two ago was also largely due to the religious ideas and feelings of the time. The body was but a shell, a prison in which the soul was confined, and against whose bars its aspirations continually beat and bruised themselves. In another image, the body was a wayside barn in which the weary pilgrim laid himself down to rest till break of day. The flesh was an incumbrance to the spirit, a clog, a burden, a snare. Men had been told to "keep the body under," and perchance this was thought to be an easier task if that body were small and weak.

I do not mean to be understood as asserting that in those days the mens sana in corpore sano was never spoken of, or that there was no formal teaching of the duty of preserving bodily health. Such precepts, however, could have little effect against general tendencies of thought and feeling; and even among the most intelligent teachers of those days there was manifest a strong dislike, a sharp shrinking from all dwelling upon the physical basis of life as savoring of materialism. As to acknowledging the relationship of man to the other orders of animals, that would have filled the pious mind with horror. The philosophy of the time had, indeed, to admit that the soul was in a degree conditioned as to its manifestations, and especially as to its influence upon others, by purely physical causes. But the soul itself was a thing transcendent, supernal, and self-sufficing, which when released from the clogs of flesh became at once as perfect, pure, free, and strong as if its tenement, while in residence here, had been more worthy of it.

All the notions referred to, so prevalent and so potent in at least this section of the United States forty or seventy years ago, have gone, and gone together. Other ideas better suited to inspire a progressive civilization have taken their place. In part this has been due to the decay of superstitions derived from primitive savagery, in part to the effects of positive teaching, in greater part still to further experience of life. Biology has done its share; political education has done its share; the war of secession wrought its appointed work in the same direction. The men of to-day are generally agreed that they are likely to live long enough to make it wise to think a hundred times how they shall live to once thinking how they shall die. The caravansary idea of existence has been abandoned. Man is not a pilgrim but a citizen. He is going to tarry nights enough to make it worth while to patch up the tenement and even to look into the drainage. This world is a place to work in: activity and development, not suffering or self-repression, its law.

The present generation has witnessed a wonderful diminution of spiritual self-consciousness. Better physiology, coinciding with some changes in popular ideals,

has driven away the notions about the flesh as an incumbrance, a clog, a burden, a snare. It is seen that morbid or even merely feeble conditions of body tend to generate delusions, selfishness, and susceptibility to the worst impulses. This is seen to be the case not the less because of the saintliness and the heroic constancy of a million sufferers from pain and infirmity. Hearty physical force may, indeed, consist with vicious desires, but it does not favor them. On the contrary, it does in a way and in a degree tend to diminish and to uproot them. Vicious desires are at their worst in feebleness and in morbid conditions of body. The sounder a man is, the stronger he is, the less—other things equal—is he subject to what is bad and degrading; the more pleasure does he take in what is natural, healthful, and elevating. To a perfectly sane man physically life itself becomes a joy. The relish for it does not need to be stimulated by the spices of vicious indulgence any more than a healthy appetite needs to be stimulated by the spices of the cuisine.

The sociological investigations into the causes and manifestations of crime, so actively in progress during the past few years, have added much to our knowledge of human nature in its self-respecting and law-abiding phases. The popular idea of the criminal once was that of a powerful brute, whose offenses against society resulted from an excess of physical vigor not counterbalanced by moral and intellectual forces. As a matter of fact, it is now known that the prisoners in our jails are, as a class, undersized and undervitalized creatures, often with a deficiency of coördination between their faculties, sometimes with a minimum of control over their own actions and little adaptability to social and industrial functions. In the remarkable, the truly admirable reformatory enterprise of Superintendent Brockway at Elmira, gymnastics, regulated exercise, and manual training perform a most important part.

In the revolution of thought regarding bodily development and physical prowess Mr. Beecher exerted a great influence. He it was who led off in favor of muscular Christianity. During the controversy on that subject which attracted so much attention just before the outbreak of our great war there was, we must admit, not a little of exaggeration on the part of the advocates of physical culture. Many wrote and spoke as if all evil was to be worked off in the gymnasium and on the race track; as if every vice of human nature would exude through the pores of the skin if only perspiration was sufficiently active and long enough maintained. But in spite of much that was crude and foolish, these men had got hold of a great truth, and they did not let go until they had drawn it out into the light. The war of secession, also, which has been adverted to, came in to produce a vast change in popular sentiments and ideals, as it showed how much nobler are strength of will, firmness of purpose, resolution to endure, and capacity for action than are the qualities of the speech maker and the fine writer, which the nation had once agreed chiefly to admire.

With this change of opinion regarding physical force and physical training in the individual has come a notable change in the political philosophy of the age. Larger experience of affairs has shown the folly of disregarding political mechanism. It is seen that it is hard enough to keep the balance of forces upon the right side, if every safeguard be adopted, every device used, and every means employed to give a preference to those who stand for order, decency, and honesty in the community. We are all now for making the devil fight with the sun in his eyes, instead of at his back, and with the advantage of the ground against him, instead of in his favor. We no longer with confidence hold that a virtuous people will necessarily have a good government. On the contrary, we recognize that a people virtuous above the average may, through a bad organization of the public forces, be made to act almost as if they were the most cowardly and dishonest of their kind. * * * It is true that the stream may not of itself rise higher than its source, but by machinery we can send a stream a good deal higher than its source,

and can make it do there more of vitally essential work than could all the waters of old ocean lying at their level. Instead of discarding political mechanism, therefore, the men of to-day believe in political machinery, like that of the Australian ballot system. They have learned that by means of it they can help the cause of righteousness, and at times turn the scale against the forces of evil. They not only believe in political machinery, they even believe in political machines, actual structures of wood and glass like the patent ballot box, as important agencies to defeat the baser elements of society.

Again, "mere bigness" has ceased to be a term of contempt as applied to nations. Power in a people has become a thing admired. It is felt that it is indeed a glorious thing to have a giant's strength, nor is it longer believed that the disposition to use strength tyrannously grows with the opportunity. The idea once prevalent that its possession leads to brutality and insolence has not been borne out by the history of our own people. As the United States have grown more powerful they have grown more peaceful. * * *

After this long and tedious statement of changes in the ideas and sentiments of our people in the several directions indicated, is it too much to say that we have, as a community, got down upon a sound, practical, sensible, worldly basis of life, much more promising for morality, for a steadily progressive civilization, for enduring enthusiasms—aye, for worthy aspirations and a true spirituality—than the unreal, morbid transcendentalism and sentimentalism of three, two, or even only one generation ago?

Among the many things, good or bad as people may esteem them, resulting from the changes in feelings, views, and ideals which have been indicated are two which especially concern colleges and college men: The first is the general disappearance, most fortunate as I esteem it, of the literary societies formerly so flourishing and the decay of oratory, declamation, and debate, which to many once made up the main interest of college life. The second is the rapid growth of athletics, in which immense honor is given to young men because they are strong, swift, enduring, and brave; in which the blood of the whole community is stirred by physical contests among the picked youth of the land as once it was only stirred by tales of battle. This last it is which has given me my subject to-day.

That the general introduction of gymnastics into colleges is desirable few will deny. Young men of the college age whose occupations are largely sedentary should be encouraged to undertake systematic and extended exercise in order to correct the faults of the study and recitation room, to expand their frames, and to promote an active circulation. Amherst is entitled to the high honor of being the first of the American colleges to make ample and suitable provision for students' needs in this respect. In 1861, under the presidency of Dr. Stearns, a gymnasium, large and well equipped according to the standard of those days, was placed upon the campus. Daily exercise was made compulsory upon students not excused for cause, and a certificated physician was made director of physical culture and lecturer on physiology and hygiene. Few colleges have followed Amherst in making exercise other than in the form of military drill compulsory; but fewer still now fail to afford their pupils opportunity for voluntary gymnastics to the top of their bent. The improvement wrought by these means in the physique of our college students does not need to be shown statistically. It is manifest to the eye of the most casual observer who remembers the former state of things. So far there is no ground of debate. Difference of opinion only exists with respect to the competitive sports and games which have grown up out of the newly awakened interest in physical prowess.

And here let me propose a distinction between gymnastics and athletics, which

will be carried through the remainder of this discussion. That distinction is not one based upon etymology, but has reference to current usage:

Gymnastics are for individual training and development, with health strongly in view. Athletics take the form of competition and contest; emulation is their moving spirit, glory the aim.

As thus distinguished in their primary objects, athletics differ from gymnastics in two respects: First, by specialization, as when a man chooses his line of work in athletics—whether that be pole vaulting, or hurdle racing, or rowing, or pitching in baseball, or playing a certain position in football—and thereafter devotes his energies to working himself up to the highest point of efficiency in that line; secondly, by excess in the amount of exercise over what would be required or would be performed without the introduction of the spirit of emulation. So great is this excess that it may not unfairly be said that athletics begin where gymnastics leave off.

The effects of specialization in athletics are too much a matter of detail to be entered upon here. Suffice it, in a word, to say that they are not unlike those of specialization in industry—good and evil being mingled, with, in general, the preponderance largely on the side of the good. Specialization affords to bodily exercise a more direct object and creates a far more intense and sustained interest. Moreover, for the best specialized work it is well known that at least a fair all-round development is almost always a necessary condition.

The excess of exercise in athletics over gymnastics, as we have defined these terms, is it of good or of evil? Is it a gain, or mere waste, or a positive injury? Gymnastics are a means to the end of health and vigor. Athletics become an end in themselves. With exceptions too inconsiderable to be enumerated, the athlete competing for championship honors takes more exercise, often far more exercise, than is required for health and strength with a view to the peaceful and industrial pursuits of life. Vital force is consumed, not created, by the final contests in which he engages, and not infrequently by the training to which he subjects himself in preparation for them. The consumption of vital force in athletics, if we contemplate young men who are fully grown or nearly so, may be considered as of two degrees: First, where vital force is consumed in competitive sports and games as it might be consumed in study or in the production of wealth, without impairing the constitution or diminishing the physical endowment upon the strength of which the subsequent work of life is to be done; secondly, where exercise is carried so far and such violent exertions are made that not merely is the current supply of vigor used up in this way, but the constitution is undermined and injuries are sustained or exhaustion induced, which result in leaving the man less healthful or less powerful through the remaining years of his life.

Of the severer forms of athletic competition and contest, which injuriously affect the constitution and permanently impair the vital force, but one thing can be said. They are evil and only evil. No earthly object, except the saving of others' lives or the defense of one's country, could justify such destructive exercises and exertions. I am disposed, however, to believe that there has been much of exaggeration in the public mind regarding this matter and that instances of permanent injury from athletics are fewer than popular rumor or maternal anxiety makes them to be. The life history of the leading football players of the past fifteen years, notwithstanding the frequency with which contusions, sprains, and even broken bones occur in the tremendous struggles of that mighty game, makes up a record of vitality and activity in the period succeeding graduation which proves that, despite the occasional outcries of the press, this form of athletic contest works little enduring injury among thoroughly trained competitors. The more serious accidents of football generally occur in the beginning of the season and among players who have not passed carefully through the hardening stages of practice. Boat racing is probably fraught with much more of real peril to its

participants; yet a distinguished English statistician, studying the life history of 320 "Oxford oars," has reached the conclusion that, even after making due allowance for the fact that these were all at the start picked men, this great body of athletes showed a vitality distinctly above the average. Yet when all has been said, it is still beyond question true that in the present intense interest in physical contests there is a real danger to be guarded against, especially among the younger and less experienced competitors.

Of those physical contests which result merely in the consumption at the time of current physical force which would otherwise, or might otherwise, be devoted to study, we can not dispose so confidently and summarily. To those who hold to the good old notion—the excellent, virtuous notion—that all young men go to college to make themselves scholars, it is, indeed, a great trial to have to contemplate a state of things in which no inconsiderable proportion of students treat scholarship as an object distinctly subordinate to gladiatorial prowess, and who really graduate, if they graduate at all, in athletics as a major, with classics, or mathematics, or philosophy, or something else as a minor, or perhaps we should say a minimum. Certainly this presents a view of college life which would have filled with horror the founders and early governors of our New England colleges. And it needs to be said at the outset, in dealing with this subject, that there are hosts of young men coming to college whose circumstances and means and views and plans of life are such that they can not afford to treat their educational privileges in this way; who if they "go into athletics," in the accepted sense of that phrase, will sacrifice the one opportunity offered them; whose presence with their classes means a degree of sacrifice and self-denial on the part of parents and friends which would make it little less than profanation to waste an hour of the time which has been purchased at such a price. And yet, with due consideration for the rights and interests of students like these, college athletics confessedly as an end in themselves are not wholly of evil. Several things have to be considered before we are fairly in a position to pass judgment upon them.

The least important thing that can be said in their favor is that they afford enjoyment to vast numbers throughout the land: yet, for one, I would not treat even this consideration as unworthy of respect. The college athletics of to-day do wonderfully light up the life of our people. The great recurring contests and the intermediate practice games and friendly competitions of the several teams give acute delight to a large and increasing constituency. This nation has long shown the painful need of more in the way of popular amusement, of more that shall call men in great throngs out into the open air, of more that shall arouse an interest in something besides money getting or professional preferment. In these respects college athletics have made an important contribution within the past few years. The marvelous rapidity with which football has spread and is still spreading throughout the Western and Southern States shows how eagerly it is welcomed as a relief to the monotony of life.

A stronger plea for college athletics is made when it is urged that they result in stimulating an interest in gymnastics among those students who do not engage in competitive contests, and also throughout the general community. The effect of this may easily be exaggerated. There is many a weak-kneed collegian who crawls out to witness the great baseball or football game of the year, looks on with intense delight, cheers the victors, if of his own side, as loudly as his limited lung capacity will permit, and then, when all is over, crawls back again to his room without so much as a conscious impulse to improve his own bodily condition. Yet it is certain that the cause indicated has an influence, and an influence not inconsiderable, for good. Admiration for manly prowess and the contemplation of fine physical development can not fail to secure a much wider cultivation of gymnastics than would take place without it.

But, again, it must be said that the favorite athletics of to-day are, in great

measure, such as call for more than mere strength and swiftness. They demand also steadiness of nerve, quickness of apprehension, coolness, resourcefulness, self-knowledge, self-reliance. Further still, they often demand of the contestants the ability to work with others, power of combination, readiness to subordinate individual impulses, selfish desires, and even personal credit to a common end. These are all qualities useful in any profession; in some professions they are of the highest value; and it can not be gainsaid that it is the normal effect of certain kinds of athletic sports to develop these qualities among the contestants, as well as to afford impressive examples to the minds of the spectators. So genuine does this advantage appear to me that were I superintendent of the Academy at West Point I should encourage the game of football among the cadets as a military exercise of no mean importance. It is the opinion of most educated Englishmen that the cultivation of this sport in the public schools of that country has had not a little to do with the courage, address, and energy with which the graduates of Rugby, Eton, and Harrow have made their way through dangers and over difficulties in all quarters of the globe.

The last consideration which I would adduce to show that what is sacrificed in athletics is not all lost is that in the competitive contests of our colleges something akin to patriotism and public spirit is developed, with results, on the whole, of good. It is true that young men often carry their manifestations of zeal and devotion to their colleges too far. Yet, both as counteracting the selfish, individualistic tendencies of the age and as an antidote to the nil admirari affectations of our older colleges, it is a good thing that the body of students should now and then be stirred to the very depths of their souls; that they should have something outside themselves to care for; that they should learn to love passionately, even if a little animosity toward rivals must mingle with their patriotic fervor; that they should at times palpitate with hope and fear and anxiety in the view of objects which can bring to them personally neither gain nor loss.

Of the special evils of college athletics as now cultivated, I do not purpose to speak at length. Some of those at present most clearly perceived are chiefly due to newness and rawness, and will of themselves disappear, in whole or in part, with time and further experience. Faults of method have yet to be eliminated; the traditions of the several games have yet to be created. For example, that regard for fair play, that respect for the rights of an opponent, that deference to the decisions of the umpire, so conspicuous in England, have there been the work of generations. They can not be built up in a day with us. Yet our people are wonderfully quick to learn, especially to learn everything that conduces to harmony and adjustment of claims; the American is eminently and preeminently a political animal; and nowhere in the world are great crowds so orderly, peaceable, and good-natured as here.

One of the first things which should receive the attention of all lovers of fair play is the complete abolition, once and for all, of the unsportsmanlike system of organized cheering by great bodies of collegians grouped together for the purpose, with chosen youths of peculiar gesticulatory graces and preeminent lung power to start the movement and "deacon off" the shouting. Such a line of conduct, thoughtlessly resorted to in the heat of partisanship, is unworthy of educated men. It is unfair to the visiting team, who, by all the laws of courtesy, are entitled to special consideration. How much more pleasing to the spectators, how much more creditable to the home college, if the stranger for the while within its gates were to be treated with something like the grace of antique chivalry!

Again, we may confidently expect that the machinery for carrying on sports and contests will undergo a steady improvement. We see a remarkable instance of the virtue of this in the appointment of the second umpire at football, which at once did away with certain tendencies that had threatened to make the game

impossible. Audiences, too, must be trained to appreciate the finer points, to applaud good work by whomsoever done, and to be as virtuous as a Greek chorus, to the end that the game may be played by the players and not by the spectators. The cooperation of alumni is also to be invoked to give wisdom, weight, and temper to the action of the undergraduate bodies. Not least—nay, perhaps hardest of all—faculties are to be educated, to avoid intermeddling and petty dictation on the one hand, and to sustain the claims of scholarship and enforce the right discipline of college on the other.

The last clause suggests one of the most important considerations related to the subject. Granting that something, and that not a little, of scholarship must be sacrificed if athletics are to be continued on anything approaching their present scale, may we yet believe that it is practicable to insist upon the requirement of at least respectable standing in the case of all who participate in intercollegiate contests. I believe that this can be done without interfering with the general movement, provided college faculties are true to themselves, fair, frank, and firm in dealing with the student bodies, and thoroughly honest in their treatment of the subject. I would not be understood to intimate that a certain amount of good sense would be out of place.

Perhaps it will not be taken amiss if I allude here to the results of my own observation in a sister university regarding which it has been my fortune to know more than I do concerning Harvard. At Yale, and especially in the scientific department, the faculty appear to me to have been highly successful in preventing a total sacrifice of scholarly standing to intercollegiate sports. But a small proportion of the champion athletes in that university, a smaller proportion still in the scientific school, have been men at or near the foot of their classes—the sort of men who have to be hounded, threatened, and repeatedly conditioned in order to keep them up to the mark. Not a few of them * * * have been high up on the roll of academic honor. I attribute this excellent result to the thoroughly good understanding between students and the faculty, to the absence of petty proscriptions and of all intermeddling as to details, and to the frankness with which the few positive requirements relating to the subject are stated and enforced.

I fear there is little in what has been here said to give comfort to those who distrust and dislike college athletics—little which intimates the opinion that the athleticism of to-day is only a reaction after the former total neglect of gymnastics, or a mere passing passion among our youth. But if we concede that these exercises and contests are to hold their place in American life, is there no stopping place, no point at which college authorities or the young men themselves, on their own motion, in their own discretion, for their own good, can say, "Thus far and no farther?"

I answer yes; there is such a natural stopping place. It is at the doors of the professional school. Among young men in the course of education, athletics should belong to the college stage; gymnastics to all stages. Whether this shall be done by regulation or be left to the operation of forces working upon the minds of the individuals concerned, I believe the result indicated will, in either case, be reached. Already the undergraduate principle is widely though irregularly recognized; and the movement of opinion is still clearly in progress in this direction. Here at Harvard you have seen many a renowned champion put off athletics as he entered the law school or the medical school. The rule should be made of universal application; and it will require but a little more of discussion, but a little higher education of student opinion, to bring this about. In and after the professional school, whether that be a school of law, of medicine, of divinity, or of technology, there should be no representative teams. The principle of competition and championship should be dropped. Individuals should continue at their

pleasure to play tennis or cricket or football with their classes, with private clubs, or in town and county matches; or if teams be formed in such schools they should not be regarded as carrying the honor of their institutions around with them. Such teams should not expect victory. They should play for exercise and for the fun of the thing, and should accept their inevitable beating with serenity and good nature, recognizing the fact that since they have taken up the serious work of professional preparation for life they no longer have the time or the strength at command to make and keep them champions.

There is one remaining question regarding the athleticism of to-day which I feel myself so little qualified to discuss that I did not even allude to it while enumerating the things that might be said in favor of competitive sports, or at least in deprecation of the hostile criticisms directed upon them, which, however, here in closing I would fain propose to your sounder judgment and keener thought.

It is whether the college athletics, which so many approve and so many condemn, have not after all a deeper significance—whether this remarkable outburst of enthusiasm for physical development and for the perfecting of the human body is not related, perhaps vitally and intimately, to the growth of a feeling for art in this new land of ours. No classical scholar will for a moment admit that it was an accidental coincidence that the nation of the Old World which pursued athletics with the most passionate eagerness, which showered honors upon the victor in running or in wrestling not inferior to those which it gave to the author of an accepted tragedy—that nation whose tribes came by long and perilous journeys over stormy seas to witness the great athletic competitions by the banks of the Alpheus or on the Crissæan plain—was the same nation which carried the arts, and especially the plastic arts, to the highest point of perfection ever attained.

If, indeed, there is believed to have been a vital connection between these seemingly diverse manifestations of Grecian life, who shall say that the remarkable enthusiasm for physical training and the intense interest in athletic contests which have been so suddenly developed in our country may not be clearly seen a generation hence to have accompanied, and that through no accidental association, the elevation of art to a far higher and nobler place than it had before occupied in the thoughts and affections of our people? The life class is the true school of the artist. The greatest of all who bear that name have been men who revered the human form, made it their chief study, and found in it their highest delight. If in truth this sublime passion is taking possession of the nation, who shall estimate at a price the worth of that inspiration? The vision of the Apollo may yet rise to the view of thousands out and up from the arena at Springfield, as erst it rose before the thronging multitudes of Olympia.

CHAPTER XV.

HORACE MANN AND THE GREAT REVIVAL OF THE AMERICAN COMMON SCHOOL, 1830–1850.

By A. D. MAYO, M. A., LL. D.

We have told elsewhere the "great and wondrous story" of the original inception of a system of universal education, organized, supported, and supervised by the people of New England, in the varied civic relations of district, town, colony, and State. We have shown that the New England colonists were able to achieve this, the most original of all their public achievements, because they represented that portion of the English people most deeply committed to the British idea of self-government and most profoundly impressed with the conviction that the foundations of a self-governing Commonwealth must be laid in the religion, morality, and intelligence of its citizens.

Besides this, until the close of the war of Independence, the people of New England were virtually of one mind on the subject of religion, strongly Calvinistic in creed and congregational in polity. Thus, although their original common school was what would be called, in our day, sectarian, it represented the almost universal public opinion of the time. What we now call "the religious question" in the common schools did not come up in New England until during the first half century of the Republic, and then was disposed of in its present fashion. On the other hand, all the colonies beyond the Berkshire hills and the Hudson River were, from the first, cosmopolitan in their national, social, and ecclesiastical composition. Hence, their effort to establish a system of universal education failed entirely during the colonial period, and only by slow and discouraging efforts through the first fifty years of the national life had they reached the table-land of a common school, essentially similar to that of Massachusetts and Connecticut, at the opening of the period now under consideration.

We have also seen why it was that the new Southwestern States, developed by the first great Western hegira from Virginia and the Carolinas, inherited the old British method of the organization of education adopted by the Atlantic Southern colonies, the college and academy, chiefly denominational, for the children of the well-to-do class, with a meager provision for the mass of the white people; and were thus left at the mercy of a widespread illiteracy, prolonged till a later date than this now under consideration. And even the new Northwest, with its magnificent outfit of public school lands backed by the national indorsement of universal education, was greatly baffled and hindered in placing on the ground its final school systems through the entire half century from 1780 to 1830 by circumstances inseparable from the establishment of new free States in a wilderness, during the opening years of the nineteenth century.

Thus, although it may be said in a large and popular way that by 1830 to 1845 the American common school had been established in the twelve Northern States

of the Union and that in the fourteen States then regarded as Southern a growing interest had been awakened and several cities, especially New Orleans, had established the American system, it is not remarkable that in the most progressive of these Commonwealths the public schools were far below the ideal of the advanced educators of the time. Indeed it was positively declared by such authorities as Horace Mann, Henry Barnard, and the leading common school reformers of New England, that in the States of Massachusetts and Connecticut there had been, for a considerable period, a steady decline in popular interest and the effective support of the people's university. And, although in the States beyond New England there had doubtless been a decided progress during the entire fifty years previous to 1830, a condition of school affairs prevailed through them all which left the opportunity for a general education of their people very uncertain, in many cases below the condition so deprecated by the foremost school men of New England.

In short, the original movement toward the present organization of universal education for a fit American citizenship, at the period now under consideration in the twelve Northern States, had won its first victory over the almost hopeless obstacles that for two hundred years from the earliest settlement of the colonies had stood up in opposition, and in the fourteen Southern States were to successfully resist its introduction for yet another almost half century, till 1870–1880. It is one thing to put into a printed constitution and even to organize into a new nationality for the loose union of thirteen contentious provinces a lofty ideal of democracy and quite another thing to incorporate the same ideal so that the people may stand before the world as a consistent democratic republic. Even more difficult has it been, first to gain the full consent of the whole American people to adopt the American system of universal education whose central institution and most powerful agency is the people's common school. It was almost a century from the organization of the National Government before one-half the States adopted it. And it is not strange that, even when all the Northern and several of the Southern States after more than two hundred and fifty years of colonial and national life had after a fashion accepted this as the final system of general education, in 1830, the farseeing educational statesmen of that period insisted that only through a great revival, reaching from the Atlantic to the valley of the Mississippi and penetrating to far-away New Orleans, could the common school system, then on the ground, be lifted up toward our present highly effective working agency for the making of good American citizenship.

It is not difficult to understand the reasons for this slow progress of the common school idea in the twelve Northern States before 1830, without imputing to their people an extraordinary indifference to universal education. It must be remembered that the original old-world immigrants to each of these colonies, British and Continental, had brought across the water the European system of education of two centuries ago. In that system a state church practically dominated and supervised the entire schooling of all classes of the subjects of these kingdoms and empires. Even the most progressive of these countries, Holland and Scotland, had not come to the New England idea of a system of universal education, established, supported, and supervised by the whole people. This system, despite all contradictions, still remains the most original and characteristic factor of the Puritan civilization of the New England colonies; the first time in human history when a whole people honestly and persistently undertook its own schooling for a self-governed State. The European ideal of industrial, social, and educational affairs, until the revolutionary epoch, remained virtually the ideal of several of the most powerful of these colonies, and only very slowly did the high walls of industrial and social caste and religious separation crumble before the persistent assault of the new American society. Still a majority of the original

Northern and some of the Southern States put into their first constitutions a recognition of the obligation of the Commonwealth to educate the whole people, and almost every new State added to the original thirteen, in the most solemn and positive manner pledged itself to the same duty.

But perhaps no people in history ever found itself in a position more critical, embarrassing, and absorbing than the 3,000,000, one-eighth negro slaves, that appeared before the world at the inauguration of George Washington as first President of the United States in 1789. The war of Independence had only yet half emancipated these colonies from the persistent hostility of the mother country. The irritation of this unfriendliness, aggravated by the disturbing influence of the French Revolution, kept the people of the United States stirred up until the close of the second war with Great Britain—1812–1815—finally brought to an end the long and dreary record of British intermeddling. The people of all the colonies had been left by the coming of peace in 1782 fearfully impoverished. The Government was bankrupt; was unable to pay its 250,000 veteran soldiers who had fought almost against hope through the seven years' war except in paper certificates of indebtedness, more nearly worthless every year. Then came on the excitement of the first immigration to the great new West and Southwest. Multitudes of the most adventurous and enterprising youth of the older colonies traversed the wild passes of the great Appalachian Mountain barrier or floated down the Ohio River to seek a home in the paradise toward the setting sun.

The population of the entire country was less than that of, at least, four of the present United States and was distributed over a region as extensive as Central Europe. There were few towns of considerable size, and by the lack of roads and the hardships of pioneer life the country was in no good condition for supporting a permanent system of education. The New England people had been left by the war in a state of religious demoralization which brought on the first revolt against the style of religious training that for two hundred years had gone unchallenged in the common schools. The towns in Massachusetts which, in their colonial estate, were able to support the town or grammar school, classical in its foundation, tributary to Harvard University, the precursor of the present free high school, by their changes in population, social and industrial affairs, had been forced to let it fall into neglect. In its place came up the New England academy, the child of the churches and private and municipal enterprise, which for half a century largely supplied the demand for the secondary education. As early as 1820, on the admission of Missouri to the Union, the contest over the extension of slavery was added to the already numerous exciting political questions that divided the people, culminating in the deeply absorbing events of the nullification period in 1830–1835. Then came in the long controversy on the financial policy of the General Government, in which the tariff and the banks arrayed the people in violent parties hostile to the verge of revolt. The northwestern and southwestern States, until 1815, were living under the constant peril of a most relentless and demoralizing savage warfare, always stimulated by the malignity of Great Britain through the Canadas. Up to 1780 intercourse between the different portions of the country was laborious, Ohio being practically farther from Connecticut than Japan from Massachusetts to-day.

Under these circumstances it is not remarkable that Connecticut, which before the Revolution had accomplished the virtual abolition of illiteracy and first of all the States had gathered a school fund, had been enticed into an organization in which the common school was so out of touch with the church that, for an entire generation, it steadily declined, and the sectarian academy and private school largely usurped its place. Rhode Island still held to the unflinching faith in individual freedom which had been so conspicuous in its settlement, and which became the great obstacle to organized effort for the common schooling of the

children. Maine was a corporate part of, and New Hampshire in many ways still a virtual annex to, Massachusetts until 1820. Vermont had been so involved in her original territorial controversy with New York and was still so inaccessible to the other States, being practically "out West," that there could be only a very gradual development of general education.

In Massachusetts the current of influence for a series of years seemed to be against the common school, whose establishment two centuries before had been her earliest title to historical renown. The old social British habit of sharp distinctions in society was still powerful, and the wealthy and educated classes seemed more and more inclined to withdraw their own children from the "common herd" into private and denominational seminaries. In 1837, when Horace Mann assumed the office of secretary of the new board of education, he found the majority of the cities and large towns paying a much greater proportional sum for the schooling of a minority of the children in private than for the training of the majority in public schools. The State was paying but $2.63 per capita for the education of five-sixths of the children in the public schools, a sum not larger than the Southern States are now contributing for their new system of public instruction. The only supervision of the public schools was by school committees, elected by the people of the 350 towns and few cities of the State. Not more than fifty or sixty towns even obeyed the laws for the guidance of this class of officials. The public school reports revealed this neglect of official control, a great deficiency in the teaching corps, a shameful condition of schoolhouses, and even in many of the larger towns of the State a dangerous indifference in the conduct of educational affairs.

But it would be doing an injustice to the people of New England to infer from this that interest in the general education of the coming generation had declined. There can be no doubt that in 1837 there was more good school keeping in all these States than ever before. The colleges had increased in number during the past fifty years, and were certainly better representatives of the higher education than at any former period. There was a fair amount of good work done in the 850 academical and private schools of Massachusetts and in the seminaries of Connecticut and the less progressive States. And although the common school in the rural districts had suffered from the habit of extreme separation, in which the people of every district, through an elected "prudential committee," retained a virtual control over the employment of teachers and the general conduct of the schools, yet in many of these towns there was a wholesome rivalry among these little obstinate district republics, which made for the welfare of the children.

The schools were taught, in the more advanced towns, by the best young men and women, the students in the colleges earning the means of pursuing their own education by winter vacation schoolmastering, and by the daughters of the leading families. The press had greatly improved since the days of the Revolutionary fathers. There were more libraries and more reading of good books as the years went on. The twelve years of the administration of Horace Mann, spite of his often disparaging estimate of popular culture, were distinguished by a great awakening of literary interest. It was the period of the rising influence of Emerson and the transcendental school of philosophy, the widespread interest in the romances of Sir Walter Scott and Dickens, and the birth years of our new American historical literature.

The sufficient cause of this general charge of the decadence of education by the common-school reformers in New England during the first fifty years of the Republic has been shown elsewhere. It was not the decline, but the general uplift of the national education to a higher plane, that brought forward the group of eminent educators, not always as workers in schools, but as public agitators, that made the great revival of 1830–1845 possible. Before the Massachusetts board of education under the lead of its great secretary had begun operations, there had

been a gradual awakening of the more thoughtful people of the New England States. In a number of schools, justly celebrated even by the severe tests of to-day, advanced methods of instruction were estimated at their full worth.

Men like Carter, Emerson, Barnard, and Brooks had appealed to the people, and the legislatures of all these States had been besieged by individual plans for important changes in the public-school laws. Essays at normal schools had been made in several quarters as a private venture. In Connecticut the conviction was steadily growing among the foremost people of the State that the public-school system must undergo a thorough revision. Even Rhode Island, last to come into the field, through the administration of Brown University by President Wayland, and the work of Kingsbury in his famous school for girls in Providence, and a rising up of the workingmen of the State, was preparing for her final effort at a later date. All things were getting in readiness for the revival of the common school, already beginning in the States of its birth, Connecticut and Massachusetts, and which was destined to spread like a great awakening light from State to State, from the seaboard in the Northeast to the valley of the Mississippi and to far-off New Orleans, the herald of a brighter day for the children of the nation.

The history of this revival of the American common school includes nearly the second half century of the national life, 1830–1870. First came the work of preparation, during the early years of the century, when the common school was accepted and set up in all the Northern States and the way prepared for the devoted band of educational reformers. This story has already been told. Second, the appearance on the stage in every Northern State, though everywhere under the leadership of a few prominent New England educators, of one of the most justly distinguished and successful groups of educational reformers known to any country in Christendom. This article will contain a series of sketches of some of the most prominent of these men, and an attempt to estimate the character of their work. Third, the subsequent reorganization of the old common school of the Eastern States into the graded school system of the present, from the rural district and city primary up through the grammar and free high school departments, to the State university with its final curriculum of moral, mental, artistic, and industrial training. This period extended till the breaking out of the civil war in 1860. The overwhelming interests of the next decade arrested the progress of all educational life in the country till 1870, when a second revival of universal education even more radical and significant in the entire Southern and Territorial sections of the restored Union set in, which is now "in full tide of successful experiment."

HORACE MANN AND THE REVIVAL OF THE COMMON SCHOOL IN MASSACHUSETTS.

On the 6th day of May, 1837, Horace Mann wrote in the third entry of a new diary: "Dined to-day with Edmund Dwight, esq., for the purpose of conferring with him on the late law authorizing the appointment of a board of education. Mr. Dwight had the civility, or the incivility (I do not doubt that his *motives* would place the act under the former category), to propose that *I* should be secretary of the board—a most responsible and important office, bearing more effectually, if well executed, upon the coming welfare of the State than any other office in it. For myself, I never had a sleeping nor a waking dream that I should ever think of myself, or be thought of by any other, in relation to that station. Query, therefore, could he have been sincere in his suggestion?"

On the 18th of the same month this "query" was answered by a written request from Governor Edward Everett that Mr. Dwight and himself should become members of the new board of education, with a renewal of the proposition that he would accept the office as secretary. The searching and pathetic words accom-

panying this entry in the journal suggest that Mr. Mann, in his capacity of president of the senate of Massachusetts, had been consulted in this matter, possibly had been one of the influential authors of that memorable statute from which dates one of the most notable reforms in popular education in the history of mankind. On his appointment as one of eight of the ten members of the board named by the governor, Mr. Mann writes: "This board, I believe, to be like a spring, almost imperceptible, flowing from the highest table-land, between oceans, which is destined to deepen and widen as it descends, diffusing fertility and beauty in its course, and nations shall dwell upon its banks. *It is the first great movement toward an organized system of common education, which shall at once be thorough and universal.*"

The Massachusetts board of education was established by an act of the legislature, passed on the 20th day of April, 1837. It was provided by this act that "the board shall consist of the governor and eight persons appointed by the governor, with the advice and consent of the council; each to hold office eight years from the time of his appointment, and one to retire each year in the order of his appointment; and the governor, with the advice and consent of the council, shall fill all vacancies in the board." The lieutenant-governor of the State was also a member of the board, ex officio.

It was characteristic of the political genius of the people of Massachusetts that this new agency, the State board of education, which remains to day the charter of its public-school system, contains no grant of power over State educational affairs save the appointment of its own secretary and the agents which are his staff, the general management of the State normal schools and teachers' institutes, with the appointment of their instructors and workers, the charge of the State school fund and the supervision of all educational institutions wholly supported by the Commonwealth. It can not touch the least district school or displace the humblest teacher. But, under a general indefinite authority of observation and suggestion extending to every school, and its duty of reporting to and consulting with the educational committee of the legislature, it has become perhaps the most influential permanent department of the State government, and has numbered among its more than one hundred members many of the most eminent men and, of late, several distinguished women of the Commonwealth, including more than twenty governors of the State. We find in this roll of illustrious names few professional teachers, but many men of national reputation in every profession and active calling. The original members of the board appointed by Governor Everett were James G. Carter, Emerson Davis, Edmund Dwight, Horace Mann, Edward A. Newton, Thomas Robbins, Jared Sparks, and George Hill. By his election as secretary of the board, on June 29, his acceptance of the office on June 30, and the beginning of his official life on July 1, Mr. Mann ceased to be a member of the board. His place was filled by the appointment of Robert Rantoul, jr., and the place of George Hill by Rev. George Putnam.

Never has the old Commonwealth been served by an official board containing more of signal personal ability and representing more fitly the varied interests of an American State than by this first board of education. Governor Edward Everett gave to it not only official recognition, but was himself one of the most earnest and influential workers during its first critical years. Mr. James G. Carter, probably more than any other man, had been the leader of the campaign of agitation which had at last brought the unwieldy and slow-moving legislature of Massachusetts to the important resolve to seriously undertake a radical reformation of the common-school system of the State. Rev. Emerson Davis afterwards became the first principal of the State Normal School at Westfield. Edmund Dwight, of Boston, contributed the $10,000, with a proviso that the State should duplicate the gift, that established the two original State normal schools for Mas-

sachusetts, at Lexington and Barre, the former the first in the United States. Robert Rantoul, jr., was already one of the foremost of the younger public men of the State, and his untimely death was little short of a public calamity. Rev. George Putnam was perhaps the most powerful New England preacher of his time, greatly interested in public education, and one of the inner board of control of Harvard University.

The election of the secretary, for by this name the State superintendent of the common schools of Massachusetts is known, is annual, by the board of education, and his duties are defined as follows: "The secretary shall, under the direction of the board, collect information of the actual condition and efficiency of the common schools and other means of popular education, and diffuse as widely as possible throughout every part of the Commonwealth information of the most approved and successful methods of arranging the studies and conducting the education of the young, to the end that all children in this Commonwealth who depend upon the common schools for instruction may have the best education which these schools can be made to impart."

The wisdom of this peculiar organization of the educational authorities of the State, which, in several of its features, has been copied in numerous cases at home and abroad, is vindicated by the fact that under it the most sacred and delicate public department of the Commonwealth is practically rescued from the excitements and perils of partisan politics. The members hold office for eight years, without salary, and the secretary can be retained as long as his services are regarded valuable. Under this organization the State, during the sixty-one years since the establishment of the board of education, has been served by its secretaries, always with fidelity and often with distinguished ability. Horace Mann was secretary for twelve years.

His successor was Rev. Barnas Sears, afterwards president of Brown University and the first agent of the Peabody education fund, who resigned at the close of a seven years' administration. Hon. George S. Boutwell held the office for five years, and only left it to begin the career of eminent statesmanship which has carried him through almost every high position in the gift of his own State and the nation. Joseph White was secretary for sixteen years, and left his mark on the body of admirable school legislation, of which he was probably the most influential author.

John W. Dickinson, second only to Horace Mann in valuable service, especially in his patient work for the elevation of the country schools of the State, assumed office in 1877 and retired in 1893. His administration of sixteen years left Massachusetts the only American Commonwealth in which instruction in industrial drawing, free schoolbooks and stationery, and a right to an education in a free high school are given to every child in the State. Ninety per cent of the school children of Massachusetts are now under effective district supervision, and almost every school district is in possession of a good library. Four additional State normal schools, a system of perpetual visitation, and numerous teachers' institutes, conducted by a corps of agents of the board of education, whereby every common school is brought under the eye of an educator of national reputation, with a score of excellent city training schools for teachers, attest the growing interest in this direction. Massachusetts now supports a common-school system in which in 1895 some 400,000 children and youth were instructed in 7,833 free schools by 11,714 teachers, 10,705 of whom are women, more than one-third of the entire number having received professional training in the State and city normal schools. The system is supported at an annual cost of $10,000,000—$19.48 for each child between the years of 5 and 15. The average wages of male teachers are $129.41 and of females $47.91 a month. The average length of the school year is eight and three-fourths months. Besides this, some 66,000 pupils are schooled in 99 academies and 359

private (chiefly Catholic parochial) schools, at a cost of $674,000. A dozen chartered colleges, with Harvard University at their head, and a great number of institutions for industrial, technical, and art instruction, business, music, and the various professions, are crowded with students from every portion of the country and were never so flourishing.

No State in Christendom to-day excels Massachusetts in the universal popular interest in education, the extended influence of its entire system of schools, and the educational characteristics of its numerous institutions for charity and the reformation of criminals. Indeed, in the prophetic words of her first great secretary, she is one of the "nations" that dwell rejoicing on the banks of that swelling river whose mountain spring, up in the highest table-land between oceans, is the board of education which sixty-one years ago began its modest existence with Horace Mann, a rising lawyer and politician of 41 years, already in broken health, almost penniless in fortune and bending under the great affliction from the recent death of his beloved wife, as its secretary.

He heard the call and, turning his back on the brilliant opportunity of a great professional and political career, stepped upward into the little office room in Boston, not under the statehouse dome, where for three years he lived and slept, working sixteen hours a day on a salary of $1,500, with no official assistance, that the common schools of his beloved Commonwealth, attended by what he called his "80,000 children," might be rescued from the decline into which they were falling.

Henceforth the great revival of the American common school—for twelve years, or until 1850—was more and more represented, not only to Massachusetts and New England but through the whole country, by one towering figure—the new secretary of the Massachusetts board of education, Horace Mann. And the more intelligently and broadly the educational affairs of that period are studied, the more clearly it appears that this man was one of the providential makers of American history.

No man is suddenly lifted out of the dust of obscurity to enduring reputation in any work of permanent value in a country like our own. Especially has every notable character in the educational development of the Republic gone through a severe apprenticeship before emerging upon the uplands of public leadership in any truly progressive movement for the schooling of the whole people. Horace Mann was no novice when, at the age of 41, already a commanding figure in the professional and public life of a State that does not readily give its allegiance to second-rate men, the unanimous voice of a group of men like Edward Everett, John Quincy Adams, William Ellery Channing, and Samuel G. Howe selected him as a leader in a conflict that was sure to absorb and finally exhaust the life of any man fit to bear the standard of reform into the confused wilderness that the common school of New England was becoming. It will explain a good deal that was not understood either by the contemporaries of Horace Mann or by many of the educational experts of to-day, if we trace his life from his birth up to middle age, when this great burden of honorable and perilous service was laid upon his shoulders.

Horace Mann was born in Franklin, a seacoast town in Massachusetts, on May 4, 1796, when the United States of America was but 8 years old. The town was named for Dr. Benjamin Franklin, who, it is said, intended to acknowledge the compliment by the gift of a church bell. But, on reflection, as he put it, "from what I have learned of the character of the people, I think they would prefer sense to sound," he gave the new town a library. Those little "town," "ladies'," "social," and ministers' libraries, located in the center of these New England towns, explain a great deal in the life of their foremost men and women in the first half century of the nation. Like so many another boy, hungry and thirsty

for knowledge, young Horace read the town library through and declared: "Had I the power, I would scatter libraries over the whole land, as the sower sows his wheat field."

His father, a worthy farmer, died when Horace was 13 years old; but the boy made the old place his home till 20. The mother was one of those sober, thoughtful, determined women of New England, who, under a laborious and almost a relentless routine of home life, carried the heart and will of a heroine. Those were the days of stern discipline in family and school, while the old-time mystery of high Calvinism was propounded by the Congregational Puritan minister, settled for life, in one sense, an ecclesiastical despot, yet an elected servant and representative, dependent for everything upon the good will of the most democratic community on earth. Dr. Emmons, a shining light in that tremendous dispensation, as Mr. Mann said, "through fifty-two years preached at and ruled the people of Franklin."

Until the age of 15 young Horace "had not a happy childhood." The family was on short rations, and the boy says of himself: "I believe in the rugged nursery of toil, but she nursed me too much." In winter he was shut indoors, braiding straw, by which he bought his own schoolbooks, and in summer was turned out to severe work on the farm. He wrote, later in life: "Train your children to work, but not too hard; and unless they are grossly lethargic, let them sleep as much as they will." But he did learn to work so that "industry became a second nature." Until 15 he only had from eight to ten weeks a year of the district schooling of the town. And it was a meager diet to which his hungry and thirsty soul was invited. If the secret of education is, as he declared, "the love of knowledge, not the love of books," he was, indeed, compelled to live on hard mental fare. The only schools he knew were a perpetual grind of memorizing schoolbooks that were often apparently written rather to conceal than to reveal the secrets even of the elementary "three r's." There was no attempt at oral teaching; even an intelligent explanation was often above the capacity of the village pedagogue. The discipline was the logical outcome of the preaching in the church; both a fair representative of the belief of the influential majority. "Sitting still," with an almost impossible obedience to the arbitrary will of the school master or mistress, and a correct verbatim recitation from a dry and dusty schoolbook, was the order of the day. Drawing, now a compulsory study in every common school in Massachusetts, was a forbidden amusement; generally discouraged by a smart rap on the knuckles of the budding artist, who had his revenge through that marvelous implement, the boy's jackknife, which left its imprint on every schoolroom bench till the temple of knowledge seemed almost in peril of being whittled out of existence; while every board fence, barn side, and granite bowlder was decorated by an uncouth and often indecent protest against the schoolroom tyranny.

It needed a mighty intensity of purpose behind a native longing for knowledge to carry such a sensitive, ambitious, and conscientious boy unharmed through the perilous years from 5 to 15. But he went through and came out unscathed. At 15 he says of himself: "I would as soon stick a pin in my flesh as through the pages of a book." There was no "dog-earing" or scribbling on the fly leaves of the few books he had earned by his winter's straw-braiding and summer toil. His reverence for knowledge was like a religion. "I looked on a young lady who had studied Latin as a sort of goddess." He came up in an era of coarse animal indulgence, neither drinking strong liquors, swearing, nor using tobacco. His "boyish castles in the air had reference to doing something for the benefit of mankind."

The great conflict of his early boyhood was the protest of his preternaturally awakened reason and keen sense of justice against the awful theology thundered over his head from the pulpit of Dr. Emmons. After untold torments, at the age of 12 he finally broke out from this terrible spell and henceforth thought and

felt his way up into a broad and catholic habit of thinking, though for many years in a maze of uncertainty, but never irreverent. It was well said, "His morality was what other people called religion." This "feeling after God lest haply he might find him" was all the more a trial from his intensely sensitive moral constitution. Horace Mann was to the last a Puritan of the Puritans; as he declares, "a man with a liberal creed and Calvinistic nerves." Like the majority of bright boys and girls of the day, he became a schoolmaster in the district school, where he taught several years before entering college and during his college vacations. He "fitted" for Brown University in six months, under a Mr. Barrett, apparently his first real teacher, and entered Brown as sophomore at the age of 20.

But his new Jordan was a weary road. His poverty was extreme. He writes to his sister: "A long time since my last ninepence bade farewell to its brethren." But he studied and got at money by all the ways best known to the struggling student of eighty years ago. He writes to the favorite sister: "In your next letter put in some sentences of mother's, just as she spoke them. Let her say something to me, even if it be a repetition of those old yarns—I mean if it be a repetition of the good motherly advice and direction, all about good character and proper behavior and straightforward, narrow-path conduct, such as young Timothy's in the primer." This terrible college toil, in which he won the highest honors of his class, graduating with a valedictory on "The progressive character of the human race," was lightened by his first love for the daughter of President Messer, whom he married and lost after the blessedness of two years of perfect home life. His only collision with the college authorities known to fame was his persistence in delivering an oration on a certain Fourth of July in the college chapel, captured and held for the Independence Day celebration by the students in the face and eyes of the faculty, who had closed the doors.

On graduating he entered the law office of Hon. J. J. Fiske, in the neighboring town of Wrentham, but was soon called back to Brown University as tutor in Latin and Greek. His best scholarship was in the humanities, although his love for science was a deep-seated and lifelong passion, with but small opportunity of satisfaction. From the university he went, in 1821, at the age of 25, to the law school at Litchfield, Conn., presided over by Judge Gould. Among the group of thirty students he was by common consent distinguished as "the best fellow and best wit, the best whist player, the best scholar, and the best lawyer in the school." He studied mental and moral philosophy, chiefly in the works of the Scotch metaphysicians, although in his later years stranded on the shoals of the popular fad of phrenology, largely through the influence of his friend Mr. George Combe, of Scotland, whose Destiny of Man and other works were certainly a great uplift to many of the earnest and thoughtful youth of the time. From the law school he passed on to the law office of Hon. James Richardson, of Dedham, Mass., and in 1823, at the age of 27, was admitted to the bar and began the practice of his profession in that town.

Living in Dedham for ten and in Boston for fourteen years, until the age of 41, Horace Mann was known as a successful and very able young lawyer and a rising politician. His exacting and almost fastidious sense of justice kept him aloof from any law case that did not commend itself to his conscience, and in consequence he won four of every five he undertook.

His unique faculty of public speech rapidly developed. In his arguments in court he always "endeavored to give each member of the jury something that could be quoted on his side in consultation." Few of our most effective American public speakers have achieved his remarkable power of condensing the gist of an argument, or compressing the central idea of a theme into one epigrammatic sentence. And although this faculty of brilliant and epigrammatic sentence making is doubtless, as in Lord Macaulay, a literary defect, yet it stood the great educator

well in hand while, for twenty-two years, he faced all comers, hurling at his throng of opponents his tremendous sentences, each like an explosive shell cast into the heart of a hostile camp.

In 1824 he attracted the attention of John Quincy Adams, then in the full splendor of his latter-day service in the House of Representatives in Congress, by a Fourth of July oration at Dedham. In 1827, at the age of 31, he was elected from Dedham to the legislature of the State. For the next ten years he was greatly absorbed by his political duties. He at once came to the front as the most conspicuous public leader in all matters concerning the higher interests of the Commonwealth. His first speech was a defense of religious liberty, probably in some connection with the law that still compelled every citizen of Massachusetts to pay a church tax, although with the privilege of deciding to what manner of church it should be appropriated, and the statute which up to a period near this had compelled every high official of the State to take oath to his belief in the prevailing theology. He also addressed and printed one of the first legislative speeches on the development of railroads made in the United States. He carried through the legislature the bill establishing the first State lunatic asylum in the country, at Worcester, Mass., under the efficient direction of Dr. Woodward. He was greatly interested in the institution for the deaf and dumb and blind then represented by Dr. Samuel G. Howe. He was the friend and adviser of Dorothea L. Dix, then entering on her memorable career as an angel of deliverance to the prisoner and the evangelist of peace and good will to all the oppressed, afflicted, and erring sons and daughters of men. His interest in the rising agitation for temperance was a part of his innermost life. He hated rum and tobacco with a perfect hatred, and it was always a trial for him to be charitable or even just to the best man who was addicted to their use.

During his residence at Dedham he married a daughter of President Messer, of Brown University, after years of patient waiting till he could pay his college debts and amass a respectable competence. The death of this admirable woman, after a perfect married life of two years, cast the afflicted husband into a shadow land of deep sorrow, spiritual uncertainty, and an almost ascetic habit of life. His brother failed in business and involved him in financial ruin. He removed to Boston in 1833, at the age of 37. During the four years following, already a man of commanding reputation in professional and public life, he lived, slept, and ate in his law office, sometimes unable to buy a dinner. He toiled sixteen hours a day. One of his earliest contributions to the public was his editorship, in connection with Judge Metcalf, of the revised statutes of the Commonwealth, in 1836. This year found him in the honorable position of president of the Massachusetts State senate, with every prospect of a political career that might land him in what may be regarded the most desirable position in the Republic, a permanent and prominent membership in the Senate of the United States. But the prodigious strain upon all the functions of life for twenty years had already broken the spring of a physical constitution of wonderful tenacity and power of rapid recuperation from dangerous prostration. At the age of 41 he seemed on the point of a final collapse of health. But above his sorely stricken, wearied, and failing body, he flamed out to all who knew him with that "radiant look" which to the end marked him as a revolving light flashing athwart the storm-swept sea of the tempestuous public life of sixty years ago.

All this time he was "laying up treasure in heaven" through the enthusiastic friendship of a group of men every one of whom became in his own way a marked character in national affairs. Dr. Samuel G. Howe he loved as a brother. Till the day of his death he made the clergy somewhat responsible for the suffering of his youth under the terrible ministry of old Dr. Emmons; but he sat gladly under the magnificent preaching of Father Taylor, for a generation the great Methodist

sailor-preacher and prophet of Boston. Of a sermon by Dr. William Ellery Channing he wrote: "It was as though his urn had been freshly filled from a fountain of everlasting love." Rev. Dr. Waterston and Rev. Samuel J. May were ministers after his own heart. Dr. Woodward and Dr. Todd, directors of the lunatic asylums at Worcester, Mass., and Hartford, Conn., were among his most honored friends. George Combe, who had come over from Scotland on a lecturing tour in the United States, was his lifelong correspondent and one of the few men who seem to have been largely influential in the development of his later philosophical and moral opinions. Charles Sumner was just emerging from his somewhat protracted lingering in the delights of scholarship and foreign travel into the great service in the cause of freedom that ended only with the close of the civil war. Jonathan Phillips, Edmund Dwight, and George Darrow were fine types of the eminent citizenship in which the New England cities have always been so rich—men of affairs who make leisure days and nights for the building of a city which shall be "set on a hill and not be hid." Of a lecture by Ralph Waldo Emerson he wrote: "It was to human life what Newton's Principia was to mathematics," although Dr. Walter Channing, who sat by his side, said it made his head ache. But, apart from the admiration and reverence for superiority everywhere, which is one of the most certain tests of genius, it is hardly possible that Horace Mann could ever have deeply sympathized with the new transcendental philosophy then in favor with a large section of the cultivated class of Boston, contemporary with the great revival for popular education and liberal thinking in religion of which Mann and Channing were the leaders.

But the time had come when it was becoming somewhat of a problem what should the State of Massachusetts do with such a character as Horace Mann. His deep, intense, almost fanatical sense of religion and morality; his relentless habit of forcing every man and every subject up to a moral standard; a moral policeman bringing the face of every prisoner under the glare of an electric light; his inveterate habit of "taking no thought for his life," according to the common habit of the vast majority of good men, so that the cause then on his mind and heart might have "free course, run, and be glorified;" his terrific power of public speech, joined with a singular magnetism for a large class of influential men, coupled with a knowledge of New England American common life surpassed by no man of that or any period, all marked him as one who in public affairs would be an unmanageable factor, not to be put aside. The great antislavery agitation that afterwards swept him aside from the grand work of his life into a Congressional career of six years had not yet come up into its later stage of war. What should be done with Horace Mann would be the most anxious thought of the few men and women who then represented what was so soon to become an "impending crisis" in national affairs.

But the appearance of such a man, so prominent that he can not be left out of sight of anybody when critical moral issues are involved, is in itself the most decisive proof that "a great and notable day of the Lord is at hand." This tremendous education of forty-one years was but a providential training for that educational statesmanship which assured his leadership in the revival of the American common school which was the fundamental condition of the salvation of the Union and the emergence of a new republic a generation later at the close of the civil war. His place was found when on July 1, 1837, Horace Mann assumed the duties of the board of education of Massachusetts and began a career of twenty-two years, memorable in the history of a State and nation. Here were a character and a career which have never been quite appreciated and never sufficiently honored by those who, by their position and culture, would be expected to hail his coming as "a man of God sent from heaven."

It may be thought a strange thing that this man, to whom apparently lay open

the most flattering prospect of a public and professional career, with peculiar opportunities for amassing wealth and the influence of high political station to patronize all the popular philanthropies, should have so easily turned his back upon them all and gone, like a lover to his wedding, to this untried and doubtful position. The salary was but $1,500 a year. He had not even the official aid of a clerk. He writes: "My task as yet seems incomparably great. I scarcely know where or in what manner to begin. I have, however, a faith, strong as prophecy, that much may be done." There is no reason to doubt his own statement that the proposition to take the office of secretary of the board of education when first made was a complete surprise. His thoughts were running in other channels, on the organizations for the relief of the deaf, dumb, blind, and insane, and the new temperance legislation. But when seriously considered, the idea of personal sacrifice does not seem to have occurred to him in view of the great opportunity of his life. He mentions with apparent surprise that, "with the exception of Dr. Channing, every man inquired about the salary and the honor of the station." The new movement of which he was the head had been born in a manger; "there was no room for it in the inn." The old Bulfinch statehouse had no corner where the greatest educational statesman of America could be given a chair and desk. He had a modest office on Tremont street, not far from the old burying grounds where lay the bones of the fathers of the Commonwealth, and there he lived and worked like a dray horse until his second marriage gave him a home.

His first official month of July and the early weeks of August were passed in a country retreat with a pile of books, thinking out a way to begin. He wrote a long letter to Edmund Dwight, on assuming the office, giving his impressions of his work. The first point he seems to have noticed in looking into the early records of education in the colonial period was that the movement proceeded entirely from the Massachusetts Bay colony, the broad-minded, college-bred, and well-nurtured men that founded Boston and the adjacent settlements. He says of the Plymouth colonists: "Compared with the contemporary legislation of the Massachusetts colony, the advantage is strongly in favor of the latter. Schools seem to have occupied very little of their attention. Learning was not a paramount object of their ambition." These Plymouth colonists were the people who came from an eleven years' residence in Holland, from which we are told that the New England common school originated. The fact is that the New England idea of education, from Harvard College down to the district school, was of purely British origin; it was the attempt of the most intelligent section of the British Liberal party in church and state to plant in the vigorous soil of a new world the university and free school from which they had drawn their own inspiration at home, with an extension of the opportunity to spread the feast of knowledge before the entire people of the colony. The fighting property of the new secretary, which to the end was the breath of his life, appears at once. "I will avail myself of the opportunity to recommend some improvements and generally *to apply a flesh brush to the backs of the people.*"

But the frame of mind in which he entered on his great enterprise irresistibly rises into a solemn and enthusiastic realm. "No man can apply himself to any worthy subject, either of thought or action, but he will forthwith find it developed into dimensions and relations of which he had no conception. How true is this of the all-comprehending subject of education." "On the part of introducing apparatus and substituting *real* for *verbal* knowledge, I must endeavor to effect a lodgment in the public mind." "*If error can only be conserved, how mighty will it grow of itself.*" "If I can be the means of ascertaining what is the best construction of schoolhouses, what are the best books, what is the best arrangement of studies, what are the best modes of instruction; if I can discover by what appliance and means a nonthinking, nonreflecting, nonspeaking child can most surely

be trained into a noble citizen, ready to contend for the right and to die for the right; if I can only obtain and diffuse through this State a few good ideas on these and similar subjects, may I not flatter myself that my ministry hath not been wholly in vain?" "Let the next generation be my client. Let me look forward to the children of the next generation rather than to the incorrigible men of this." "When I preach, I hope I shall not forget that, however near a true man may get to heaven, he still retains the main part of his relations to the earth." Good Jonathan Phillips sent him a present of $500. The salary fixed by the legislature, after deducting necessary expenses, left him $500 a year to live on. But he writes, with his peculiar humor that always carries an edge, "I will be revenged by doing more than $1,500 worth of good."

It is evident that Horace Mann went about this work to which he had been "called with an effectual calling" in no literary, scholarly way, or even according to the ordinary zeal of the educational spirit. It was to him, first of all, a work for the general elevation and inspiration of the people of the Commonwealth, and through them of the whole Republic concerning the relation of the younger third of the population to the general welfare, even the salvation of the State and nation from perils that no one saw more clearly than himself. It was evident to him that this was no mere professional labor of calling the attention of the people of Massachusetts and New England to the importance of a general enlightenment. Massachusetts and New England had never been indifferent to education, and from their earliest and feeblest beginnings as communities had cherished it as the apple of the eye. Nowhere in the world in 1830-1850 was there a reverence for distinguished ability and learning, a respect for high professional eminence, a habit of giving honor to superiority of character, genius, and large mental acquirements greater than was found among the "common folk" of these Commonwealths. Neither were Massachusetts or New England at that time destitute of great names. Webster and Channing and Everett and their like were at the height of their fame, and a group of younger celebrities in every profession were in training for the more exacting days that were sure to come. But in Massachusetts and New England educational affairs were in that peculiar state of transition where it was to be finally determined whether the aristocratic British ideal of a separate and higher culture for the well-born and well-off was to become the established order, or the whole people, as far as was possible, could be "nurtured" together for a republican citizenship that laid on every man, however great and good, the Christian obligation of being the servant of all and the brother of his kind.

In the days of colonial poverty and special disabilities, under the pressure of a chronic irritation from the heartless mother over the sea, it had been comparatively easy to keep the children and youth together in the little elementary and free grammar schools of the day. But now, after fifty years of national life, with the growth of a powerful cultivated and wealthy class, the first eruption of a great multitude of the humbler sort from Europe already coming in like a rising flood, the old British conflict of the "classes v. the masses" had once more arisen. The common schools had been permitted to fall into comparative neglect. The academies and colleges were regarded as the more appropriate places where the superior families should educate their children. The new transcendental philosophy had yet assumed no popular aspect, but rather encouraged its disciples to draw off into little communities or dwell apart in a scholarly and eccentric isolation that could easily nourish a proud conceit of superiority. The tremendous agitation among the churches inaugurated by Dr. Channing's famous discourse at the ordination of the Rev. Jared Sparks in a new independent church in Baltimore in 1819, and the secession of a hundred of the most powerful and influential of the old Puritan societies from the Congregational Evangelicism of the day,

were a fire in the bones of every little and great community in the State. The fury of political partisanship was at its highest pitch over the outbreak of the nullification movement in South Carolina, which was only compromised by springing upon the country the conflict of financial theories which we have with us today. There was imminent danger that unless the common school could be in some way lifted out of the ruts, reorganized in a form to meet the demands of the new time and the more cultivated and influential class, its teachers trained not to be ashamed to look in the face of a college professor or the reverend principal of a denominational academy, the country schoolhouse made the most instead of the least attractive place for the children and youth, the people of all sorts and conditions awakened as by a thunderstorm of remonstance, warning, and appeal to the peril of a society where a highly trained and ambitious minority should dominate an ignorant and quarrelsome majority, there was everything to be feared ahead.

No specialist, however earnest and eloquent, like Carter or Brooks; no scholar like Barnard, learned in all the wisdom of the educators of every land, no great teacher like Emerson, Kingsbury, or Wayland could now fill the scene. It was not so much a work of pedagogic enlightenment as of a high educational statesmanship, looking before and after, adapting the present conditions to the new possibilities of the Commonwealth and the nation, that under the modest title of secretary of the Massachusetts board of education challenged Horace Mann, woke him up to the first real consciousness of his own peculiar genius, revealed the possibilities of an original career, and summoned him as commander-in-chief of a great host to a conflict that would outlast his day, in which the victory could only be won when the Republic should be all free and the people of one mind go on to the making of the model nation of the earth.

His brief month of August in the country, buried in piles of documents, was all the preparation vouchsafed to the secretary for the beginning of his great work in the early days of autumn. Meanwhile the board of education had issued an address to the people of the State, inviting a series of popular conventions of educators and friends of the common school for general discussion, promoting a mutual acquaintance, obtaining information, and recommending some practical measures for advancing the good cause. The secretary was expected to attend all these meetings with the members of the board and as many of the distinguished men of the State of all professions as could be interested in the movement. Attention was called in this address to the condition of the schoolhouses, to the duties and compensation of school committees, the training of teachers, the establishment of district school libraries, and to a uniform series of schoolbooks as fit topics of discussion in these gatherings.

In addition to this method of ascertaining the actual condition of common-school affairs in the State, the secretary was directed to collate the reports of nearly 300 towns and cities on the state of education, containing the local details of the past year. This practice had been established a few years before, and a somewhat unsatisfactory series of abstracts had been prepared by the secretary of state. But Mr. Mann at once saw a great opportunity in this method of setting before the people the actual state of public education. Under his hands, after several months of incessant labor, his first Abstract of School Reports came forth, an intensely interesting volume, containing not only the statistics but the remarks and suggestions of the school committees. Its appearance was a cause of humiliation and hope—humiliation at the low average of popular education; hope in the great intelligence and good spirit displayed in many of the good suggestions of the local committees. The fact that there was now a commander in chief of the educational army awoke the same enthusiasm as the appointment of a Washington or a Grant to the command of a soldiery dispirited by feeble leadership

and constant defeat. At once the best men in every town, who had been discouraged by the almost hopeless condition of educational affairs, took heart and consented again to serve on school committees and give their best thought to their official duties and their experience to the preparation of their annual reports.

This series of abstracts, half a dozen in number, prepared with great care and incredible labor almost entirely by Mr. Mann, are among the most reliable educational documents in American official literature. The final result of this practice was the passage of a law requiring the school committee of every town and city in the State to issue an annual printed report to be forwarded to the State board of education. These reports, more than 300 in number, are now bound into stout volumes and offer to any inquirer into the present condition of school affairs the best means of obtaining information and of reading the words of a great variety of workers in every department of the schools in all sorts of communities. It was the most practical way of beginning the arduous work of the secretary, uncovering the actual status of the common school and popular education, and is now largely adopted by the school authorities of the country.

The preparation of this first abstract of reports seems to have suggested the fourfold method of dealing with the public to which Mr. Mann adhered with a marvelous and persistent industry and a complete success during his entire term of service of twelve years.

1. The abstract should be used as a method of placing before the public the annual condition of school affairs, not only what was being accomplished, but what the school committees, who were the motive power of the system, were thinking, feeling, and proposing to do.

2. In his own annual reports he began that elaborate discussion of the fundamentals of universal education which lifted this official communication out of the dry and dusty monotony of a formal public document to a positive addition to the literature of the American common school. These ten reports by the secretary followed each other in stately procession, each better than the last, the entire collection making one of the most notable series of powerful and suggestive writing on the general theme of public education ever given to any country. They became a model for this department of educational literature. Mr. Mann was followed in the West by the annual reports of the superintendent of St. Louis, Mo., and later Hon. William H. Ruffner, first State superintendent of schools in Virginia, followed in the same track and published a series of remarkable documents that declared him the Horace Mann of the new educational South.

3. For the wider dissemination of these reports, the publication of interesting information, and the discussion of methods of school organization, discipline, and instruction the Common School Journal was established and published ten years. It was edited by Mr. Mann as a personal contribution to education, in no way pretending to represent the opinions of the State board of education and inviting a wide range of discussion. It never paid its way as a pecuniary venture, and the editor received no return in money for the days and nights expended upon it. In this bimonthly journal is to be found a great deal of the secretary's most racy and suggestive writing, often going into the most homely details of school life, broaching ideas, methods, and ways and means that have become the commonplace of public-school administration. There is little at the present time in any department of our public instruction that was not suggested in that epigrammatic and intense style of his, which gave to every sentence the life and soul of his own eloquent spoken words.

4. But the spoken word was always a mighty power with Horace Mann. His lectures before the educational conventions that were at once called and grew up during his administration, published by order of the board, are still unrivaled in their combination of a broad and statesmanlike treatment of the entire subject,

with the most elaborate detail, splendor and pertinence of illustration, and skillful manipulation of the common facts of the everyday life of the child and the community by which he is environed. Theodore Parker said, "A New England audience must be treated to a good deal of logic and plenty of statistics to be greatly moved by a public speaker." The skeleton of every lecture delivered by Horace Mann, and every lecture or speech, whatever its title, had education for its theme, was just this masterly array of statistics, bound together by a relentless chain of logic. Yet all was clothed upon by a body of splendid rhetoric, enlivened by a grim humor that turned to his opponent a keen edge of satire, often lifted into the highest realm of eloquence by a religious, moral, and patriotic enthusiasm that declared him one of the greatest preachers of his day, the compeer if not the rival of Parker and Beecher as a true minister of the religion of love to God and man.

5. In addition to all these agencies, his correspondence was enormous in quantity and of a rare quality, which, even as it appears in the brief memoir prepared by his wife, only stimulates and exasperates the desire for more. In these letters he literally poured forth his innermost heart and soul and mind and strength into the listening ear of his correspondent. Our own large acquaintance with the elderly school men of the South has offered numerous interesting illustrations of this habit. A correspondence with gentlemen in New Orleans, La., was the occasion of sending Mr. A. J. Shaw, who had done reliable service in the legislature of Massachusetts at a critical period in the early administration of Mr. Mann, to that city and the establishment, with remarkable success, of the first system of public instruction in the Southwest. The third United States Commissioner of Education, Hon. N. H. R. Dawson, of Alabama, ascribed his early interest in public schools to the correspondence of Horace Mann with his father.

6. Most striking of all the methods of promoting the cause was the tremendous power of controversy, in which all the personal force, and sometimes the red-hot fire of the flaming indignation of his Puritan nature, raged like the eruption of a volcano. It was soon made evident to him that in undertaking to magnify the common school of his native Commonwealth he ran right into a hornet's nest of highly influential people, who at heart were thoroughly skeptical of American institutions, and preferred the British or Continental European schemes of education, not so much from their knowledge of any special superiority, but because they were the methods of an aristocratic or imperial régime. There was also an early demonstration of severe theological and ecclesiastical criticism, almost amounting to persecution, from one quarter on the charge of secularizing, and from the opposite direction of forcing sectarian religion into the schools. The great Catholic controversy on this matter had not yet taken form in Massachusetts. But there was enough of partisan religious jealousy of the influence of the State board of education and the rising power of its restless and imperious secretary. Later still, thirty-one grammar-school masters of Boston attacked him in solid column, evidently with an honest opinion that he was undermining the cause of sound education; but, perhaps, as the anticipation of a searching review of the condition of the grammar schools of the city, after an examination ordered by the public authorities, and conducted by experts like Dr. S. G. Howe, Judge Parsons, and Counselor Charles G. Loring.

In all these and similar cases he swept the field and overwhelmed his assailants by a combination of facts and figures, logic, sentiment, and satire heated red-hot and projected as from the crater of a volcano. In his subsequent career of six years in Congress, amid the fearful excitements of the period approaching the outbreak of the civil war, this habit became even more pronounced, and, as in his assault on Daniel Webster and his terrible wrestling match of controversy with Mr. Wendell Phillips, impaired his public influence and reacted on his temper and

And his work was not in vain. It is easier now than at that time to see this, obscured as it was by the toil and dust of a public service that was a perpetual conflict. His impatience, disgust, and despondency were often the inevitable result of his constant weariness. His health was always on the verge of a collapse, and he wrought at his great reports, abstracts, and lectures often in a feebleness of body and oppression of soul that might well have courted the relief of death. But despite all hindrances the grand work went steadily on. With the exception of the declaration of war by the thirty-one Boston grammar-school masters a few years later, after his report on the German schools and the teasing criticism of a portion of the religious press, he rarely was antagonized by one of the great men of his State or encountered any combination of the academical or college interest in any organized opposition. The legislature responded reasonably to his suggestions and during the first year of his administration passed a law increasing the compensation of school committees and enacted the statute establishing district-school libraries, which the secretary declared the most important law since the original enactment of 1647, which founded the American common school in the colony of Massachusetts Bay.

Before the first eventful year of his service had expired good Edmund Dwight made the gift of $10,000 to establish two State normal schools, on condition that the legislature would duplicate the same. On July 3, 1838, on Lexington Green, where "was fired the shot heard round the world," amid a pouring rain, half a dozen young people appeared, and under the lead of "Father Pierce," a distinguished teacher from Nantucket, organized the first State normal school in America. A second school, at Barre, in the interior of the State, was established later in the same year. Soon afterwards this school was removed to Westfield, in western Massachusetts, the Lexington normal to West Newton, and a third was set up at Bridgewater. The experiment of educating teachers in private academies subsidized by the State had already been tried at large expense with unsatisfactory results in New York. In New England several attempts to maintain a private normal school had only confirmed the most thoughtful educators of the day in the opinion that only in a system of professional schools supported by the State or a municipality, exclusively devoted to pedagogics and supplemented by institutes for teachers, was there any reliable assurance of elevating the standard of teaching in the people's schools. Mr. Mann persuaded his wealthy friends to give their money for the experiment of the teachers' institute and often spent liberally himself for the same cause. It appeared after his death that from his own small private means, assisted by Principal Pierce and other good friends of the cause, he really secured the establishment of these first schools and enabled them, under the skillful management of Pierce, May, Davis, and Tillinghast, to become a model for the country.

In 1839 the legislature enacted a law fixing a six months' term as the minimum of the district school through the Commonwealth. And still the great secretary goes toiling and thundering on, like a mighty express train laden with precious freight and brilliant schemes for the future. When Hon. Marcus Morton was finally chosen governor of the State by a majority of one vote and it appeared that the administration and the legislature were to be forced to a final decision whether the board of education and its restless secretary should be suppressed, he writes: "First, I will try to conquer; but if conquest is impossible, then I will try to bear." "Persevere, persevere, and so on, a thousand times, and ten thousand times ten thousand."

In 1839 the decisive conflict came. A majority of the committee on education in the house of representatives of the legislature reported a bill abolishing the board of education, the secretaryship, and the normal schools. An eccentric, enthusiastic, and magnetic popular leader, Rev. Alvin A. Dodge, of Hamilton, presented the argument against the whole idea and scheme of Horace Mann in a

written report and the accompanying speech. Fifty years later the same material was elaborated by his niece, the brilliant Gail Hamilton (Abigail Dodge), into a stout volume, written in wholesale disparagement of the American common school as reorganized by Horace Mann. This report was ably controverted by the minority of the committee, under the lead of Mr. A. I. Shaw, who afterwards established the common schools of New Orleans, La. The secretary himself took a full hand in the discussion after a fashion so effective that, some ten years ago, a member of the Massachusetts legislature was discovered voting steadily against every appropriation for the common schools of the State on the ground that fifty years before Horace Mann had so brought his father in the legislature under the flail of his terrible rhetoric and sarcasm that he could not do otherwise.

But the effort was a conspicuous failure, although it seems incredible to-day that 182 members of an intelligent legislative body in Massachusetts could have been induced to array themselves against the children's right to good schools, while 245 members stood up firmly for education. A subsequent attempt to transfer the duties of the board of education and the secretary's office, as in New York in 1822, to the secretary of state, met a similar fate and was the final defeat of the anti-common school faction in the Commonwealth. From that day, now fifty-nine years, the legislature of Massachusetts has stood firm as a rock on that question, always ready to adopt any proposition that could be shown to be a positive advance in the educational life of the State.

The new legislature of 1840 was more favorable than ever. It voted an appropriation of $6,000 a year for a term of years to the State normal schools. It also offered $15 a year to any school district that would duplicate the sum for a school library. The one mistake in this important movement, almost forced upon the management by the persistent assaults upon the board of education by certain clerical opponents of the secretary insisting that sectarian publications were included in the selection of books, was the attempt to prepare a library of 50 volumes written or adapted to the supposed wants of children.

But the reports of the secretary were everywhere read; 18,000 copies of one of them were reprinted in New York. They were translated into German and read with admiration in the highest educational circles abroad. He had created a new educational literature. Almost for the first time the reader of ordinary intelligence could listen with patience to an address on education or sit down to a public-school report with a feeling that he must read it through at the cost of an invasion of the small hours of the morning. The omnipresent secretary seemed to have his hand in every generous man's pocket in behalf of the good cause. Mr. Brimmer gave $1,500 to send a copy of the essay "School and schoolmaster" to every school district in the State. Meanwhile Mr. Mann was printing large editions of his own speeches at his own expense; never permitting himself to address a personal document at the cost of postage to the State; through his entire term of service maintaining a fastidious and almost fanatical ideal of official honesty and fidelity. Until his second marriage, to Miss Mary Peabody, a sister of the celebrated woman educator, Elizabeth Peabody, and of the accomplished wife of Nathaniel Hawthorne, he lived in his office after a fashion rather becoming the member of an ascetic religious order or a State prisoner on short rations than as became the dignity and comfort of the foremost popular educator in the world. During these twelve years of almost slavish toil and perpetual conflict with the enemies of the people's school, he paid off the indebtedness forced upon him by the failure of a relative. After his marriage he established a home in a mortgaged house in the then beautiful suburban village of West Newton. A great deal of his work was done there, for it was not till the administration of his successor, Dr. Barnas Sears, that it seems to have occurred to the legislature of Massachusetts to add to the office of the secretary that of State librarian, and to give the

chief of the vast educational interest of the Commonwealth a right to sit in an official chair under the statehouse dome.

The summer of 1843 completed the first half of the twelve years' service of Horace Mann as secretary of the Massachusetts board of education. On May 1 of that year he married Miss Mary Peabody. His health was again at one of those critical points that occurred with fatal periodicity during his entire educational career, the last twenty-two years of his life. He decided to visit Europe, at his own expense, ostensibly to recruit his wasted bodily vigor. But, as his friend Dr. S. G. Howe said, "His mind went of itself." The contemplated bridal tour abroad turned out one of the most laborious periods of work in his entire official life, a daily examination of the schools and public institutions of Great Britain and Germany, with his accomplished wife as an assistant. The work was complicated by his small speaking knowledge of the German and French languages, as he was compelled to depend largely on interpreters for conversation, although he could read public documents and general literature therein. But no man ever saw and felt more of what was about him than the secretary.

It would seem well at this point to "take account of stock" and try to ascertain what were the peculiar methods of operation by which Horace Mann awoke such a marvelous interest far beyond the borders of New England, and what practical results had so far been realized from his influence over school men and legislators. This seems to us the more important, since a full third of our own country is to-day in an educational situation in many ways resembling the condition of New England and the entire North sixty years ago. In the sixteen States of the South the common school has been established within the swift thirty years since the close of the civil war in a manner that has challenged the admiration of the educational public at home and abroad. But to-day the South finds itself at a most important crisis of its educational history. In New England and the North in 1830–1850 enough had been done to settle the question that these States had finally indorsed the American system of common schools as the permanent method of training their entire population for American citizenship. But as Horace Mann, in 1837, found the common-school system of Massachusetts entirely inadequate to meet the demand of that early day, so the foremost educators of the Southern States are now asking, How shall the new common school, through a region as large as Central Europe, inhabited by 25,000,000 people, three-fourths of whom are still living in a sparsely settled rural country, with little surplus of earnings or savings to spare, with open and secret enemies of popular education on every hand, already the legislatures of several States showing signs of a reactionary policy, be taken in hand and lifted up to a state even approaching that of New England and the North, so that the entire benefit of this method of public education may be realized? There is no better answer to this question than to study attentively the record of the ideas, plans, and policy of Horace Mann during the first six years of his administration. During that period he had not only made manifest the spirit he was of and what should be the manner of man to lead a great revival of popular education, but he had shown by what minute, painstaking, and gradual steps, against what vexatious, even exasperating, opposition, in constant peril of fatal reactions, the great and good work not only went on, but obtained that momentum on which every great public tendency in a country like ours must finally rely for permanent success through a long period of years.

We can easily see that the task set to himself by the secretary was twofold. First, a great revival of attention and enthusiastic interest in the common school idea must be awakened in all classes; not alone in the lower stratum of population which was constitutionally indifferent or hostile, but among the educated, wealthy, and influential class whose sympathies were half alienated from the

people's university and seemed on the point of falling back on the old British way of a separate scheme of culture for their own families. Second, as this campaign of education should proceed, he labored to the end that the attention and interest of the lawmaking power should be awakened and concentrated up to the point of a revision of the school laws of the Commonwealth that amounted to a complete reorganization of the present system.

And this, from 1830 to 1850, was a work of peculiar delicacy and difficulty; for the intense individuality of the New England character and the peculiar organization of its public township life, with a constitutional abhorrence of the concentration of power, made this work of reorganization almost "a war of posts," each of 350 obstinate towns and cities to be besieged and captured in succession. And the deepest depth of this tendency had been reached by the law which made each one of some 3,000 school districts a corporation, practically all-powerful to determine the vital condition of its school. To put on the ground an organization, not at once, but by patient working through a generation, that would "smoke out" these little district school communities from "the hiding place of their power" might have taxed the executive genius of a far less impatient reformer than Horace Mann. But by the wonderful combination of faculties in which no American educator has been his equal the great revival was set in motion, the machinery was carefully manipulated, and the tracks of influence surveyed by which the good work went on with never a serious backset from the last year of his service to the present day.

We have already seen with what an almost incredible energy of purpose, fertility of resource, and unconquerable patience he organized the forces of the great revival. He was master of half a dozen separate methods of appeal to different classes of the people. By attracting to his cause the men of the highest ability and culture most held in esteem by the whole people of the Commonwealth, by his own Common School Journal and the constant use of the press, by turning the new lecture system into an agency of educational reform through the village lyceum which already blazed with the discussion of common-school affairs in every town in the State, was the public not only awakened but kept more alive year by year. Never was a Commonwealth in Christendom more thoroughly besieged, bombarded, overwhelmed as by a cyclone of agitation than Massachusetts during the twelve years of the administration of Horace Mann. The office of secretary of the board of education was like a central public school room, agitating the people, continually reporting and suggesting methods of reform to the legislature, yet with no legal power to act. But when the first Massachusetts board of education called Horace Mann to his place, its members knew just what they were about. Here was a man who not only would faithfully perform the legal duties of his office to the very letter, but, above and beyond, would magnify the office itself and tower aloft, shining everywhere, make himself the vital public center of every organization, a tower of flame in the far-away East, seen from every corner of the Republic.

For twelve years he so dominated the State, so compelled everybody to follow or fight him, that it required ten years of the comparatively mild administration of his successors, Sears and Boutwell, for a rest before the vigorous administration of Joseph White and the long and splendid service of John W. Dickinson could bring the educational affairs of the State to their present high position. As in Southey's poem, "The Curse of Kehama," the Prince of Darkness is represented as storming a city over a score of avenues from every point of the compass, so the opponent of Horace Mann knew not whither to go, for he was met by some new incarnation of his terrible energy at every turn of every road.

But the progress of actual reform was not at any such rate of velocity. In fact, we have seen that the second year of his administration was largely occupied in manipulating the legislature to resist a desperate effort to repeal the entire system

and abolish the secretary himself. But this victory was final, and one measure after another was carried, each a foundation stone in the reorganized common school.

1. First of all, the board, under the leadership of its secretary, ordered an abstract of the common-school reports of all the towns and cities of the Commonwealth made for the information of the people. It was already the duty of the secretary of state to do this work, but the secretary of the board relieved that official of his duty, and year by year launched upon the public a series of "Abstracts" that opened the dullest eyes and awakened the apprehensions of the most confident concerning the true state of educational affairs. It seemed as if nothing was right and as if each department of public education was a little worse off than its neighbor. The board called attention to the disgraceful condition of schoolhouses in so many of the districts that it seemed a common evil; to the lack of preparation by teachers, and the consequent poverty of the instruction; to the uncertainty of school attendance, one-third of the children between 5 and 15 being constantly out of school; to the chronic neglect of school committees to attend to their duty of the examination of teachers, visitation of schools, and superintendence of schoolbooks, of which three hundred sorts were in use in the State; to the irresponsible and often half-barbarous methods of discipline, including corporal punishment as a steady régime. All these things revealed a confirmed common-school habit, by the indifference of one and the neglect and opposition of another section of the people, who should work together for the common good of the children and the State.

The first year was spent largely by the secretary in visits through the State, chiefly at his own expense, addressing conventions, often little squads of hearers, but all the time getting at the influential people of every community, devising ways and means and methods of work. Especially did he work upon the real motive power of the whole machine, the town school committee. This was the only system of school supervision on the ground, a body of three, or some multiple of three, men elected in town meeting or in cities by popular vote, working with no adequate compensation, on whom was cast the delicate and laborious duties included in the present elaborate scheme of city and district superintendency. By legislative enactment he caused the salary of these officials to be raised, and labored with all his might to overthrow the mischievous arrangement of separate districts, of which he said: "I consider the law of 1789, authorizing towns to divide themselves into districts, the most unfortunate law on the subject of common schools ever enacted in the State." His whole contention was to gather up this wide, extended, shapeless tangle of a district school system, responsible to nobody out of eyeshot, jealous as death of town authority, and rebellious of State control, into a compact body, not by the European fashion of the imposition of a power from above, but by the intelligent control of the whole people. For twelve years Horace Mann was virtually superintendent of schools in every town and city of the State; never more so than when the thirty-one grammar schoolmasters of Boston organized a teachers' rebellion and were thrashed into subjection by their mighty master, representing the outraged public opinion of the city and State. But it was not till the power of his great personality was removed in 1850 that school superintendency even of Boston was enacted by law. And until 1859 the district system maintained a losing fight against being merged into the town of which it was a part. To-day nine-tenths of the children of the State are under a local or district supervision, besides enjoying the constant inspection and advice of the expert agents of the State board of education.

2. The State school fund had already been created on paper, in 1834, with the proviso that it be raised to $1,000,000 from the sale of public lands in Maine and other sources. The board of education was now intrusted with the care and dis-

or were able to get three summer or two or three winter months in public schools. In 1839 the law was passed which required a six-months school, continuous or divided into two terms, as a minimum of free public education in every district. The same law provided for a female assistant to every school of more than fifty pupils. But the teachers were still elected by the "prudential committees" of the separate districts, until in 1844 this power was partially, as it was later fully, restored to the school committees. The statute compelling the teacher to file a certificate of examination before receiving his salary corrected an abuse that will everywhere prevail while the office of rural teacher is at the mercy of a personal favoritism most injurious to the public welfare. Already, in 1827, the excellent law making the establishment of a free English high school compulsory on every town of 500 families (2,500 people) and of a classical high school in every town of 4,000 people had been placed on the statute book. Massachusetts is still the only American Commonwealth that in this way makes the secondary education now compulsory on all her population, a fashion which has not only been of immense value to the State, but has so advanced the reputation of Massachusetts in the upper side of public and private instruction that the income from the tuition and living of persons coming to the State to attend the secondary, higher, and professional schools is to-day many fold the outlay of the half million expended on the 30,000 free high-school pupils at home. To-day every child in Massachusetts has the right to forty weeks a year, for three or four years, in a free English or classical high school.

5. In 1837, although by law the school committees were authorized to select the text-books and arrange the courses of study in all the public schools, the statute "was more honored in the breach than in the observance." The secretary found three hundred different sets of schoolbooks in use in the State. He labored with all his might to introduce order in this realm of dire confusion and did succeed beyond expectation. He brought in not only the present arrangement of a reasonable uniformity of text-books, but encouraged the introduction of a better quality. Some of these which came up at this date under his encouragement are still among the best in any language. To-day all text-books and material for school work are free to every child of the State. The books are purchased by the school authorities and loaned to the children, who are thereby taught the valuable lesson that came to young Horace Mann by instinct, "that he would as soon stick a pin into his own flesh as into a page of a book." His writings are full of the advocacy of oral and personal instruction, and long before his visit to Germany he had suggested nearly all the improved methods of approaching the mind of the child, with the emphatic indorsement of the woman teacher in elementary instruction, that have so mightily changed the aspect of the primary schoolroom within one generation.

6. One of the first reports of the secretary was devoted to the improvement of schoolhouses. It would be impossible to believe the accounts of the condition of the public schoolhouse in many communities of New England, sometimes even in the larger towns, were it not confirmed by the testimony of people who, like the author of this essay, have been the victims of the chronic neglect and indifference of the average American community of that date to the condition of the children in those old "temples of science." With a surprising wealth of information and the entire resources of his matchless eloquence, persuasion, and satire did the secretary assail this conspiracy against the children in the public schoolhouse. The result was that within two years of his appeal to the people $500,000, and during the twelve years of his administration $1,000,000, had been expended, not in expensive city temples, but in the construction or improvement of a great number of country and village school buildings. A course of Mr. Mann's illustrated lectures, with stereopticon views of the outside and inside of the old-time American school-

house, would be one of the most popular entertainments of the day. The fact that our American common-school teachers never had the European habit of living in houses provided by the State, indeed were largely drawn from the younger stratum of the population, and often, in the old time, "boarded round" in the families of the district or were cared for in some temporary place, may have told on the structure of the schoolhouse. The poverty of fit sanitary arrangements and the deficiencies, often the intolerable discomfort. of the average schoolroom of that period would be almost incredible to the children of the present city schools, who are often largely of foreign birth and from humble homes, but who guard their schoolhouse and grounds as carefully as if they were in a crystal palace. Would that Horace Mann could now revisit the scene of his labors and be led from one beautiful and convenient schoolhouse to another till he felt that coming back to his own dear Commonwealth and the country he loved so well was like a welcome to one of the "many mansions" reserved for the faithful in the life eternal.

7. We have already seen how young Horace Mann appreciated and used the little public library given by Dr. Benjamin Franklin to the Massachusetts town named from himself. It was the passion of his life to bring the opportunity of good reading to all the children and youth. In 1837 probably not one-sixth of the 600,000 in Massachusetts had access to a free library of any sort, for although perhaps no town was then destitute of a moderate collection of good books of the kind then most in vogue, either held by some association or lyceum or in the parson's "study," yet these were seldom free. Of the 180,000 volumes in the 229 social and 50 school-district libraries in the State in 1838, valued at $200,000, it is estimated that half were in Boston, which then had 62,000 people. Only 25,000 people had free access to the 15 town libraries of 3,000 to 4,000 volumes each, and to the district-school collections of 10,000 volumes, valued at less than $4,000. There were no general circulating libraries out of Boston, and only one-tenth of her population had access to those in the city. The immediate success of the district-school library in New York and the amount of money expended on it, $55,000 for several years in succession, had greatly interested Mr. Mann. He declared the passing the law of Massachusetts in 1837 for moderate State aid to this subject one of the most important educational measures since the original establishment of the common school. It may be that the disappointment from this venture was somewhat owing to the limited supply of readable children's literature, which has been largely the growth of the past fifty years. We remember the patient spirit in which we plodded through the dreary Sahara of Rollin's Ancient History and the "classic" essays and poems of the Queen Anne writers that filled the shelves of our minister's study, and the delight, as in the coming of a bright spring day, when the new doctor came to town and brought the first copy of Shakespeare and a hundred good novels and volumes of voyages and travels.

Mr. Mann's literary taste was pitched on a key too steep and severe for the comfort of his young friends who came to him for advice. Probably no collection of more "useful" and more unreadable books than the 50 volumes he caused to be written or edited for the original public-school libraries of Massachusetts were ever offered to the young people of any State. The subsequent movement for town and city libraries, often the gift of their old school boys and girls, filled with the most attractive works of the day and connected with a reading room for the leading journals and periodicals, had well-nigh extinguished the public-school library until its recent revival under the administration of Secretary Dickinson and State Librarian Tillinghast gave it a new lease of life. But, with all these drawbacks, the movement was a good one and out of it has come the present overwhelming opportunity for reading. Indeed, it may well be questioned whether the boys and girls of fifty years ago, who were compelled to "read, ponder, and

inwardly digest" the few good books available till they had become a vital part of their mental constitution, were not more profited by their reading than multitudes of our young folks who revel in a surfeit of the so-called literature supposed to be appropriate to the present needs of young America.

8. The experiment of compulsory attendance at school, if it was ever a reality in the early colonial period, had been wrecked against the American Declaration of Independence and the proclamation of "Liberty throughout the land to all the inhabitants thereof." Certainly, there was no attempt to enforce the practice when Horace Mann sat down hard in the official chair of the secretaryship that became a throne during his reign of twelve years over the educational mind and heart of the old Commonwealth. In 1836 the first attempt was made to deal with the scandal of child labor in the factory, which, like a black shadow of despair, always accompanies the coming in of manufacturing industry, and even to-day is the disgrace of half our own country. In 1850 the truant laws were first put in the statute books of Massachusetts. We read with amazement that, as late as 1842, it was lawful in Massachusetts to keep a child under 12 years of age at work in a factory ten hours a day. From this barbarism to the legislation of 1876, only one generation, by which no child under 10 years of age could be employed in any manufacturing establishment, or under 12 while the public schools are in session, or under 14 without having enjoyed twenty weeks of schooling in the year, was an upward step into a higher civilization. And nobody in America had labored and prayed and stormed and insisted more persistently to this end than Horace Mann.

9. The one hateful side of the old common school, even of the original college of the early time, was the severity of discipline. It was not especially a feature of the New England Puritan life, for in the South, where family discipline was never so rigid, the absolute brutality of corporal punishment in schools is remembered as a hideous dream by multitudes of people yet alive. Our own recollection in Massachusetts goes back to the time when no day passed in school without that chapter of "accidents" which it was assumed would "happen in the best of families." Parents and school authorities seem to have been in league with the schoolmaster and schoolmistress to hold the vagrant spirit of the rising generation under the terrors of the ferule and rod. There were plenty of teachers who apparently exhausted their small mental outfit in devising original and painful methods of torture for the idle, dull, and disobedient. To clutch a big book held at arm's length; to "hold down a knot" in the floor by one finger; to stand on one leg; to "sit with the girls;" to be thrashed, "jointly and severally," as it pleased the despot in charge; to isolate or mass the victims—all these horrors come back to us as a nightmare only rivaled by the awful ghost novels we read "on the sly" at night. In our own county, a district not backward in education, lived two pedagogic pugilists whose business during the winter months was to "keep out schools" that had rebelled against their teacher and often put him out-of-doors and "broken up the school." And this cheerful work produced such an exhibition of daily brutality as curdles one's blood to recall.

Against this barbarous style of discipline as a system Mr. Mann arrayed himself from the first. He abhorred corporal punishment in all its hateful variety, while reluctantly confessing that there is a possible limit at which patience and "moral suasion" may give place to the song of the birch. But he pleaded for the natural right of the child to happiness during his school years and the possibility of a nobler and more successful method of school government with all his heart.

His terrible scoring of the thirty-one Boston grammar-school masters for their chronic habit of punishment inaugurated a reform by which every teacher who inflicted corporal chastisement was compelled to make a record of it, with the reasons thereof, always open to public inspection. Of course, a great deal of the

disorder and disobedience in schools of every sort at that day was the result of the bodily discomfort, mental weariness, and moral exasperation caused by the old-time schoolhouse, incompetent teachers, and the stupid methods of instruction then in vogue. Mr. Mann writes that, until the age of 16, he was never asked in school for the meaning of a sentence in a reading lesson; indeed, "the inquiring mind" was not in favor with the average teacher of the day. With the coming in of the improved schoolhouse, more attractive text-books and apparatus, better teachers and natural methods of instruction, the old savage ideas of "school government and discipline" have broadened out to the entire field of moral and religious or character training, of which government and discipline are but the outward garment. Dr. Nott, of New York, and President Wayland, of New England, had already inaugurated the great reform in college discipline in the interest of common sense, common justice, and common humanity. This movement, at a later period, was carried to its splendid culmination by Horace Mann, as president of Antioch College, Ohio. There, in a community of 500 boys and girls, gathered in from the homes of the new West and Southwest, in a village without police, with gardens and fruit orchards on every hand, there was such a spirit of order and cheerful respect for the moral proprieties and courtesies as had never been known in student life before that day.

All these topics are discussed in his seven published lectures and twelve reports in a manner at once broad and minute, with a patient elaboration of the details of common-school keeping, a splendor of illustrative imagination, a fervor of patriotic eloquence, and a solemnity and pathos of moral and religious consecration which characterize his method of treating this subject and constitute an era in the literature of education. It is this style of dealing with education as related to every essential interest of man, individual and social, that gives to these volumes a permanent value. Whatever elaboration of pedagogic culture or recondite excursion into the realms of psychology or biology may characterize the present or future discussions of our great educators, the time will never come when a thorough acquaintance with the writings of Horace Mann will not be the most wholesome corrective of extreme views, recalling the experimenter and speculator from wrestling with the technicalities of the schoolroom to the vast, wide, and profound world outside, from which the child comes to the teacher and to which he must so soon return to put in practice what he has there acquired of wisdom or manhood.

It is said that soon after the beginning of the splendid work of Dr. Barnas Sears in the Southern States as agent of the Peabody education fund a large collection of Mr. Mann's addresses, pamphlets, and reports found at Antioch College, Ohio, after his death, was distributed through these States with the best results. Of the number of educational writers that can be counted on the fingers of one hand who have compelled the attention of the large majority of intelligent and patriotic people of this Republic, Horace Mann stands yet supreme. And this supremacy he owes to the fact that, above all professional and technical preparation for his great work, he was the first educational statesman of the land, and nobody so clearly and broadly as he has discerned the vital relation of the common school to our American Government and order of society. And no man has set forth these relations in a manner at once so instructive to the student in college and so uplifting and inspiring to the intelligent citizen of every portion of the country.

At the close of this record of the twelve years' service of Horace Mann as secretary of the Massachusetts board of education it will be profitable to sum up the visible results of his work in the inauguration of the educational revival in New England, which was felt to the remotest border of the last Territory organized by Congress. But in 1843, when half his term of office had expired and he was per-

suaded to take a six months' vacation with his wife, with hope of recruiting his shattered health and for a leisurely observation of European school life. these results had already been achieved. Besides the new legislative action already referred to, which provided for a thorough system of reporting and a yearly abstract of the conduct of affairs being placed before the people of Massachusetts; besides a lifting up of the minimum of the school term to six months, which probably affected half the smaller towns of the State; the fixing of a more reliable compensation for the school committees, and the insisting that these, the only supervisors of schools, should perform their duties as laid down in the statute; the establishment of three State normal schools; the gathering of teachers into county and State associations; the organization of a great system of educational lecturing by the most distinguished men of the Commonwealth; the publication of the Common School Journal and distribution of many thousands of published documents among the teachers and the people; the establishment of district school libraries in many of the towns; the stirring up of the primary teachers of Boston to efforts for self-improvement; and beyond all, the soul of all, the mighty awakening power of this apostle of the new education, so that no little hamlet in the remotest corner of the Commonwealth escaped attention, while more and more his reputation was becoming national, there was a gratifying increase in the pecuniary support of the schools and improvement in all things connected therewith.

The first abstract sent forth by the board of education in 1837 informed the people of the State that Massachusetts had a population of 691,222 and a property valuation for public taxation of $206,668,580 in 1830. There were then 2,918 common schools in the State. The number of children and youth between the ages of 4 and 16 were 177,053. Of these, 141,837 were under instruction, with an average attendance of 111,500. The schools were in session through an average of six months and twenty-five days; but this average was secured by the Boston habit of keeping school "the year round" and of the forty or fifty larger towns or cities, which maintained a session of seven, eight, or nine months. In fact, one-third of the children of school age were not at school and probably one-half of the towns in the Commonwealth did not hold their schools in session more than four or five months. One-sixth of the children of the State were in 854 private schools, which, outside the academies, were generally of a temporary character, with no responsible supervision. Indeed, their status was unknown and unknowable outside the limited circle of their patrons. There were 5,961 common-school teachers employed, of whom 2,370 were men and 3,591 women. The male teachers were often college or academical students, teaching during their winter vacations and, as a body, were greatly superior to the women, who seldom enjoyed advantages for education in any way comparable with their brothers. The men worked at an average salary of $25.44 and the women of $11.38 per month, including board, generally in the families of the district. The amount annually expended from taxation, fees, and subscriptions for the free schools was $513,529.19, less than $3 per capita for the children and youth of school age. There were 854 private schools and academies, many of the former being vacation schools of practically the same character as the public schools and taught by the same teachers, though with a tuition bill attached, with 27,266 pupils, which cost $328,026.75, more than half the school money expended by the State on one-sixth of the children.

But this was simply the outward showing of a state of affairs which looked more discouraging the more completely it was uncovered. The city of Boston, with a population of 80,000 and a valuation of $80,000,000, expended on the 7,000 children in public only one-half of the sum given to the 4,000 in private schools. The older cities along the seacoast followed this example, while those of the interior, like Worcester and Springfield, reversed the order of expenditure. The boys

were more numerous in the public schools than the girls; the latter still held more under private instruction. Only 14 of the 43 towns directed by law to establish a free high school were complying with the statute. Not one-third of the school committees in the State were living up to the demands of the law in regard to the examination of teachers, visiting of schools, or any real supervision of the work in the district schoolhouse. Not a teacher in the State was the graduate of a normal school, and probably the majority of them had no education beyond that gained in the rural country schools, with perhaps a term or two at a neighboring academy. The condition of great numbers of schoolhouses, according to Mr. Mann's first report, was a scandal on the civilization of the nineteenth century. The habit of the wealthy and educated class of sending their children to private and academical schools was fast letting down the common school to the rank of a poor man's refuge and accounted largely for the indifference even of the class dependent on them for all the education possible for their own children. The lack of any professional training of teachers by lectures, suitable reading, and instruction was complete. No wonder the secretary, out of the depths of his great heart, wrote: "Into what a state of feebleness and neglect our common-school system has fallen, and how deeply decay has eaten into its vitals! It is hoped that when the people learn into what a dilapidated condition the whole frame of this venerable institution has fallen, they will rouse themselves to some correspondent exertion to save it from irretrievable ruin."

That the people did respond at once in the most effectual way, by putting this plea into legislative enactment, is evident. By 1845–46 the secretary could report: "In earlier years our reports were principally occupied in exposing wants. A much larger portion is now occupied in indicating present improvements." In 1843, after six years of his administration, the people were expending $585,000 for 195,000, and in 1845–46, $620,000 for 203,000 pupils in public schools, with a relative ratio of expenditure for private and academical institutions. One by one the legislatures came up to their duty of establishing the free high school. Many of the most distinguished men of the State were serving on the school committees, and generally this important official body lived more nearly up to its duty as the only supervising power of the Commonwealth. The secretary declared: "In no country on earth could the progress of a free system of education be so well studied in all its varieties as in the State of Massachusetts." Its compact location of the motive power of government in the township organization enabled each community to move without restraint with a beneficent spirit of rivalry from town to town. The reports and abstracts of the secretary were largely read by all intelligent people. Mr. Mann read every word of the local reports of the 300 towns in preparing his own two general reports of 5,500 pages on his return from Europe. Meetings were held for the express purpose of listening to the reading of his interesting public documents. In many of the smaller towns associations of good people were formed to visit the schools and encourage the teachers and people.

Boston was waking out of its lethargy of self-complacency; the school committee came down with a sharp word concerning the condition of schoolhouses unworthy so wealthy and beautiful a city as Boston. In 1846 Massachusetts stood at the head of the States in the wages paid to teachers, $24.51 per month paid to men and $18.07 paid to women, exclusive of board. The secretary wrote: "For the last two generations, with exceptions comparatively few, all the eminent men of the State, whether men of letters, physicians, lawyers, clergymen, legislators, or judges, had taught school, more or less, during the early part of their lives." The waking up to the improvement of the moral and religious teaching of children was marked. In 1847 there was not a common school in Massachusetts where the Bible was not read, although the State had not yet made Bible reading in the schools obligatory by law. The secretary declared that "far more has been

spoken and printed, heard and read on education within the last twelve years than ever before, were it all put together, since the settlement of the colonies." In 1846 the Bay State was spending, all told, for the schools $1,000,000, $1,000,000 for its churches, and far more for charities, and had already $60,000,000 invested in railroads at home and beyond its own limits.

A great improvement was marked in the discipline of the schools by moral and humane methods rather than by physical force. The maxim of the secretary, "No low nature can perform the office of a higher in the common school," was heeded, and a greater care was shown in the selection of teachers. The secretary's statements read like prophecy: "By what spirit are our schools actuated?" "Do they cultivate the higher faculties of the child?" "The children of the people must be fitted for society as well as for themselves." "Of all neglected or forgotten duties, in all ages of the world, the spiritual duties of children are the most neglected." "The old way of clearing the land of refuse population by war, pestilence, and famine is outgrown. All will stay with us, and we must educate men or suffer by being with them." In 1845 the secretary declares that the inequality in distributing the State funds to the towns has been remedied, and in no year has his advice and assistance been so eagerly and widely sought as in the present time. In 1843 the people of the State seem to have been thoroughly awakened to the improvement of schoolhouses, and had expended for this purpose alone, since 1837, $1,000,000, with a steady gain of $100,000 a year for the general management of the schools.

In short, the people of Massachusetts were responding in their own moderate and reliable way to the three propositions laid down by their great secretary of education, which may well be copied and hung up in every public schoolhouse in the United States to-day:

1. "The successive generations of men, taken collectively, constitute a great Commonwealth."

2. "The property of the Commonwealth is pledged for the education of all its youth up to such a point as will save them from poverty and vice and prepare them for adequate performance of their social and civil duties."

3. "The successive holders of this property are trustees bound to the faithful execution of this trust by the most sacred obligations; and the embezzlement and pillage from children and descendants have not less of criminality and far more than the same offenses when perpetrated against contemporaries."

On May 1, 1843, Mr. Mann was married to Miss Mary Peabody, sister of Elizabeth Peabody, so well remembered by American kindergartners, and of Mrs. Nathaniel Hawthorne, wife of the celebrated novelist, herself a woman of fine qualities and unusual literary ability. His health was at one of its periodical crises. After six years of prodigious activity and corresponding anxiety it was decided by his friends that a release from the workshop could alone save his precious life. His proposal, at his own expense, to make a tour of six months in Europe, combining the pursuit of health with the observation of educational affairs abroad, was accepted. He left the editorship of the Common School Journal in the hands of Mr. George B. Emerson and departed on his first and only journey across the great water.

His physical condition would have been alarming in any man less accustomed to "coming off conqueror" in the fight with the last enemy than himself. He could not sleep. As Dr. Howe said: "His mind went on of itself." He was tormented to distraction by neuralgia and submitted to the removal of "a whole mouthful of teeth" in hope of relief. His wife writes: "He fought all his editorial battles over on his bed at night." He carried old Massachusetts and her children on his heart wherever he went. In thirteen days from leaving home he was visiting the schools, prisons, and charitable institutions of Great Britain.

Nowhere does the absolute preoccupation of his mind in the absorbing work of his life appear in a more startling way than during this period.

He was received with distinction in Great Britain, and saw more that was characteristic of the Empire than was common for a visitor outside of official life. But the Puritan in his nerves and blood rose up in obstinate protest against the terrible contrasts of life in the Old World. At Eaton Hall, near Chester, the grand seat of the Duke of Westminster, the first of the great English estates he visited, he was shocked at the sight of infirm old women doing the hard outdoor work of strong men. He writes: "I left the magnificent spectacle in a state of mind I can not now express." Thomas Carlyle seems to have been in one of his least bearish moods, for his visitor went away with real enjoyment of "the genuine, irresistible, boyish heartiness of his laugh." He noticed that the dog kennels on the estate of the Duke of Buccleugh "were much better built and had a far more comfortable air about them than half the cottages we have seen in England and Scotland." "The object that called up the deepest and tenderest associations seen since I left home was the lowly, humble cottage in which Jeannie Deans is said to have been born." He could not understand the admiration of the Scotch for their native heather. To him it was "brown and lifeless, and had not a particle of beauty to ally it to poetry. * * * It looks as if it were dead when it came up." At York Cathedral he writes: "To me the sight of one child educated to understand something of his Maker and of that Maker's works is a far more glorious spectacle than all the cathedrals which the art of man has ever reared." Yet he was profoundly impressed by the cathedral at Cologne, and visited it again and again while in that city.

At a great fancy ball at Almacks he blurts out: "Such dresses! Such caricatures of humanity were enough to make a man call the baboons and kangaroos his brethren rather than these." But he remarks that "about twenty ladies were beautifully and tastefully dressed. The money of the others apparently did not hold out, for their dresses rose but just above the waist. Among the men there was not a single good head." At the Tower of London he exclaims: "Three millions of jewels in the regalia, and more than three millions of destitute, almost starving, subjects!" At Stafford House, the London residence of the Duke of Sutherland, he writes: "All this is splendid beyond anything I ever saw. Were there no crime and no poverty in the world how one could enjoy this." If it were not for the necessity of caring for his health he "would far prefer to be closeted in narrow apartments, working for the children at home, to all the joy of beholding this magnificent display of Scottish lakes."

In this preoccupation of spirit he journeyed through Great Britain and portions of the Continent for six months. He was by no means insensible to the attractions of noble scenery, rare cultivation of the land, splendid architecture, music and art, and the amenities of cultivated society. But, when he turned his back, in 1837, on the brilliant career of his early manhood to consecrate himself to the children of the Commonwealth, like the great apostle he said in his heart, "This one thing I do." Henceforth his wearisome days and sleepless nights, for twenty years, were to be given to the mighty ministry of education, which, in his vocabulary, represented nothing less than the entire training of young America for American citizenship.

But small rest was found for his body during these six months, crowded with experience that ripened into the future administration of his great affairs. It is doubtful if the European visit of any American in later years has borne a more abundant and precious fruitage to the Republic than this summer rush of Horace Mann from city to city through Great Britain, Germany, Holland, Belgium, and France, in pursuit of all that could be gathered for "his 80,000 children at home." He found popular education in England less advanced than in any country visited. Despite a general educational charity fund of several millions of dollars,

1,500,000 English children were living in complete mental destitution. A bill was then before Parliament for the establishment of a national system of education, to be virtually under the control of the clergy of the Church of England; even the certificate of a clergyman being necessary to secure employment in a factory by a child. The most flagrant favoritism was shown in the distribution of this charity fund; for the searching investigations that came several years later into the condition of the secondary education in England had not yet uncovered the scandal of so many of these endowed schools. At Oxford he heard elaborate courses of lectures given by learned professors to empty benches; the chief study under tutorship being Latin and Greek. He was informed that nine-tenths of the children in England received all their schooling before the age of 9. There was no effective system of national instruction till a generation after this.

In Scotland he found a different condition of affairs. The parochial-school system had there been in operation almost two centuries, but only one-third of the children in Scotland were found in this class of schools, the remainder being attended to by private arrangements. He was astonished, but not edified, at the prodigious activity and energy of the Scottish school life. The teachers and pupils performed double the amount of work that seemed possible in the schools at home. The masters were generally college graduates and aimed at a thoroughness of instruction, especially in language, nowhere else attained. The national system of common schools in Ireland was then in the early years of its success. Three hundred thousand children were being taught in schools in which the rival church authorities agreed to unite on unsectarian moral and practical religious instruction during school hours, with arrangements for theological training outside, the use of schoolhouses for religious and political gatherings being forbidden. He was greatly interested in Archbishop Whately, the most prominent author of this arrangement, and regarded him as one of the ablest and most catholic men of the Kingdom. The Irish system of prisons was seen and studied with intense interest. Several of the great private school corporations and benevolent institutions for children attached to others met his approval. But, outside a few architectural displays in private school buildings, he did not see a common schoolhouse in his entire visit that compared with a second-rate house at home. The children uniformly sat with their feet dangling above the floor, on benches without backs or desks, and in Great Britain, outside a few exceptional places, with small provision for the illustration of studies. The normal schools were private enterprises, and largely restrained by the sectarian policy of their management.

In Germany he found another condition of affairs, as far as the administration, methods of instruction, and spirit of the school life were concerned. He visited Prussia, Saxony, Holland, Belgium, and several of the minor German States, taking Paris on his return. Here, for the first time, he saw the result of a wise and powerful public policy in the organization of a system of education that included every family and went on with the irresistible force and precision of one of the powers of nature. In Prussia the minister of education was a member of the royal council, with a position, emoluments, and honors similar to other high officials of State. A complete system of normal schools supplied the country with educated men teachers. A thorough inspection of the schools was all the time going on by competent supervisors. So complete was the effect of the compulsory system that the children seemed born to go to school. In Saxony he found the most to admire, the little kingdom having a constitution and Parliament, "a good bit of ham sandwiched between Prussia and Austria." All the German States were only in the beginning of constitutional government. Austria had not yet succeeded in providing for the education of the whole people, but Holland was even more advanced than the German States. Belgium had established a system of schools in 1830, and France was moving in the same direction.

In these Continental States alone he found what he went for. Horace Mann

was preeminently an educational statesman of the progressive American type. He did not go to Germany, like so many scholars since his day, to admire the administration of imperial government or fancy that the motive power of public education in the United States could be safely transferred from the whole people to an aristocracy of learned men. He had no great faith in a compulsory education of the German type, with a bayonet prodding the waistband of every indifferent or obstinate subject. In his famous seventh report, made after the return from his European visit, after an elaborate explanation of the many superiorities of the German school system, showing the most thorough appreciation of its numerous excellencies, he closes with a most powerful and philosophical analysis of the essential difference between American and Continental European society. He explains the fact that a system of schools in many ways so excellent, had not yet materially changed the despotic character of society in Prussia. The reasons he found in the fact that, in 1843, the peasantry of Prussia had not yet been half a century out of the bondage of a practical serfdom; in the contamination of society from the evil examples of the superior classes; in the fact that the mass of the children were withdrawn from school at so early an age, only the superior youth being encouraged to go on even to the secondary education; and specially that, after school, there was nothing to stimulate that ambition for rising in life which is so powerful in every class of American youth. The popular saying in Germany, "The school is good; the world is bad," had condensed all these conditions into one sentence.

He failed not to comprehend the method and spirit that dominated the educational system. The masses of the people should be made sufficiently intelligent, moral and religious, content with their lot, patriotic, and with a childlike reverence and affection for their rulers. The school life was to him by far the most hopeful spectacle in all these countries. The teachers seemed to him, by all odds, the finest body of men he met—the true fathers of the young, rather than pedagogues of the old-time sort. Many of the improved methods of instruction now in common use in all good American schools were there seen in full operation. He admired the success in introducing the little children to proper school life, the skillful way of teaching reading, numbers, geography, nature-knowledge, especially the writing, drawing, and music. The discipline was after his own heart. In Holland corporal punishment had been abolished, and during his entire visitations on the Continent he never saw a pupil undergoing punishment. A beautiful spirit of affectionate confidence, like the sunshine, pervaded the schoolroom. He never saw a teacher sitting or using a text-book. A great variety of methods of illustration, especially for primary pupils, were noted. The schoolhouses were observed. They were greatly inferior to the better sort at home. The convenience of the children was hardly thought of, ventilation almost unknown. "The Dutch and Germans have no noses." "Everyone sleeps, even in summer, under feather beds, and only the convicts in the prisons have blankets!"

For six months, twelve hours a day, did this indefatigable educator "in pursuit of health" traverse this wide area of country. He found his Scotch friend, George Combe, in Germany, also an invalid, and the two wooed health by endless talks into the nights, which were often spent in reading public documents concerning the institutions visited by day. In Germany Mr. Mann was known to the children as "the white-haired gentleman." He went into every open schoolhouse door and absorbed information as through the pores of the skin. He was not the first of American explorers in that field. Already had President Bache, of Girard College, Philadelphia, made a valuable report concerning the public, charitable, and penal institutions of the Continent. In 1830 Rev. Calvin Stowe had visited Europe, at the instance of the State of Ohio, and given an interesting and widely read account of all he saw. But Mr. Mann went with such an outfit of enthusiasm, experience, and faculty of trained observation as no previous visitor.

His lofty manhood rose story by story above the head of the average school man. He saw and appreciated all that was to be seen of improved administration and method. He was in perfect sympathy with the loving spirit that so distinguished the schools of Germany especially from those of Great Britain. His large experience and intense interest in the criminal code and the working of the charitable institutions for the deaf, dumb, and blind and youthful offenders, and the great moral movement which under the name "the temperance reformation" has so blessed American society, enabled him to measure the value of that side of European life. He found nothing in the care of the insane to surpass the asylum established during his early political life in Worcester, Mass. He gave close attention to the improved method of teaching the deaf, dumb, and blind as introduced in the asylums at Boston and Hartford. The prison discipline of the Continent still lingered in the barbarism of the dark ages. And above all, he overlooked the entire life of the countries he visited from the high vantage ground of educational statesmanship.

For these reasons this tour of six months, embarrassed as it was by actual feebleness of body and by the disability that he could only read and not easily speak the Continental languages, was one of the most important ever made since the years when Franklin, Adams, and Jefferson went abroad as the first representatives of the new American Republic. His seventh report to the board of education, made in 1844, was in many respects the most revolutionary and influential document ever launched on the tide of American public education. It was everywhere read, and everywhere awakened admiration and aspiration for a higher training of the teacher, better methods of instruction, and a more benevolent type of school discipline. It also woke up the last grand revolt against his administration. In 1845 Horace Mann, by universal assent, stood at the head of American education. Henceforth his life, as secretary of the Massachusetts board of education, Representative in Congress, a great schoolmaster let loose in the National Capitol, and president of Antioch College, Ohio, was a prolonged conflict with the "remainder of wrath" inherited from two centuries of crude educational experimenting still fondly cherished by a large body of men in all departments of American educational life.

From this important journey Mr. Mann returned to wrestle with new labors and confront an opposition which through his entire administration had been seeking occasion for an assault in force. On the publication of the famous seventh report, the most important document in behalf of the new education yet presented to the American people, it was evident that the protest against the new educational heresies must be made or their opponents "forever afterwards hold their peace." It came in the most impressive and respectable way, in the celebrated pamphlet issued by the thirty-one grammar-school masters of Boston. This document, written in a moderate spirit, was not so much a pronounced attack on the advanced views of the secretary, as illustrated by his observations in the schools of Germany and in Holland, as an elaborate denial by those gentlemen of what they declared his exaggerated statements concerning the condition of popular education in Massachusetts. Without positively assailing the reform movement, of which the board of education, through its secretary, was the representative, they made the curious mistake of regarding a great deal in his statement of facts concerning education abroad as a covert disparagement and impeachment of themselves.

This document brought from Mr. Mann a powerful reply, in which the truth of his representations concerning the general conditions of the common school in Massachusetts at the time of his election to his office was established by an overwhelming display of statistics. No man ever better understood the art of massing figures upon an important point than he. His fiery rhetoric and brilliant illustrative imagination lighted up the long vistas of his facts as by an illumination of

electrical lamps. The effect was similar to the spectacle of the first use of the electric search light which I witnessed on a Mississippi steamer, when every plantation, village, and hamlet was caught in its night undress and flashed out upon the spectator in its dishabille. It was not necessary that the secretary should assail the Boston schools or depreciate the work of their masters. It was only important that the whole field of the reformed common-school life of the day should be illuminated by a skillful arrangement of facts and an exact statement of the results of the new order where applied, leaving the people to their own decision.

It is not necessary to revive the memory of that last important demonstration against the revival of the common school of Massachusetts, or to attempt to fix the responsibility for the evils and defects that were exposed by the relentless criticism of the great secretary and others that came to his aid. The masters only did what any body of educated men can always be expected to do, practically intrusted with despotic power in educational affairs. While nominally chosen by annual election of the school committee, they really had a life lease of these important positions. Indeed, this body of schoolmasters was the only abiding power in the Boston schools. Through their great influence, the neglect of proper supervision, and the preoccupation of the leading classes in their own affairs they really elected the school committee, appointed the teachers, and generally directed the whole organized scheme of discipline and instruction. There was yet no city superintendent of schools in Boston. The grammar-school department was divided into reading and writing schools, meeting at different hours of the day and presided over by separate instructors. While the teachers of the elementary grades had shown a commendable interest in the work of the secretary and were moving in the right direction, this higher realm of the grammar schools, where the great majority of the children received their last schooling, was practically a close educational corporation. There were a few progressive and a small group of faithful and hard-working men among this number, and the policy of the attack on the secretary was not adopted until after much discussion and against the protest of the ablest men of the body. After the first round of controversy one of the leading masters retired from the field. The ablest of all, though among the foremost in his contention against the German methods of instruction, subsequently came round to an enthusiastic indorsement of the new education, became a progressive professor of didactics in Brown University, and, through a vigorous old age, was known as one of the most attractive lecturers and instructors on all subjects relating to the common school.

This controversy was protracted over more than two years, through a small library of pamphlets, and stirred up a brisk discussion of educational affairs through the press of the entire country. The result was a signal triumph for the reformed education in Boston and a complete indorsement of the policy of the State board of education. Four of the assailants among the masters lost their positions on demonstration of inefficiency. Several of the leading citizens of Boston, like Dr. J. G. Palfrey and Hon. George S. Hilliard, were placed on the city school committee. A committee of examination of the schools was appointed, with Dr. S. G. Howe, Judge Parsons, and Hon. Charles G. Loring as members. This, the first thorough investigation of the city schools, revealed such a spectacle of mechanical instruction, abuse of corporal punishment, and neglect of physical comfort and health in schoolhouses that the secretary could well afford to retire and leave the contest with the people. A city ordinance was passed compelling the registration of all cases of corporal punishment in a book open to public inspection. A grand shaking up of the dry bones of routine, a partial curtailment of the usurped power of the masters, and the beginning of a reorganization of the entire school system prepared the way for the establishment of a city superintendency of education a few years later.

A simultaneous assault on the secretary by a portion of the denominational religious press brought out from Mr. Mann, more plainly than ever, his strong convictions on the importance of moral and practical religious instruction and training in the schools. Under his earnest presentation of these ideas the entire body of common schools of the State were using the Bible, not for a sectarian purpose, but as the handbook of private and public morals. The secretary's ninth report to the board of education, in 1845, is one of the most cogent, thorough, and illuminating addresses on moral discipline and character training in public schools ever written, and should be kept in publication as a treatise of permanent value for teachers. He writes: "By what spirit are our schools characterized? Do they cultivate the higher faculties in the nature of the children?" "The children of the Republic must be fitted for society, as well as for themselves." "Of all neglected or forgotten duties in all ages of the world, the spiritual culture of children has been most neglected." "No low nature can perform the office of a high one in the schoolroom." "Try to vitalize the conscience of a child, instead of tying him up to a set of rules." "The true teacher will consider the train of feeling not less than the train of thought which is excited by the exercises of the schoolroom." No idea was more abhorrent to Horace Mann than the extreme "secular" theory of the common school, advocated by an influential body of educators and to some extent actually enforced during the past thirty years. His counsel had a great effect on fixing the present use of the Bible in the common schools of Massachusetts by compulsory law, with ample safeguards for the rights of conscience.

One of the points of attack by the thirty-one Boston schoolmasters was that Mr. Mann was not a professional teacher, but a theorist let loose upon a professional class which represented the wisdom of experience. The charge was disposed of by the fact that he had, from his youth, been a teacher in the common district schools, a tutor in Brown University, for many years an active member of a board of education, and always more deeply interested in educational studies than in any other line of investigation. As an all-around educator, Mr. Mann's primary qualifications for his great position were:

1. A genius for morality and practical religion in their application to common affairs and a profound knowledge of the life of New England, including civil life, as if, from his cradle, its every feature had been impressed on his memory by a spiritual photograph.

2. A culture much more extended than that of the ablest schoolmaster; as an eminent and successful member of the legal profession; distinguished in public life as a member and presiding officer in the legislature, including a wide acquaintance with all classes of the people and a powerful influence over the foremost men of the Commonwealth.

3. His long and careful study of the problems of penal, charitable, and reformatory institutions, especially for youthful offenders, had greatly enlarged his comprehension of the complex problems of popular education. And, over and above all, his twenty years and more of educational life were characterized by a consecration to the children's cause that, like a great flaming light-house in the center of his being, made his opinions, conduct, and entire manhood as transparent as the day.

In his eighth report, 1845, the secretary enlarges on topics hitherto discussed, although he writes: "Up to the present time these reports have been largely occupied in pointing out defects; at present in noting the march of improvement." He warmly praises the great work going on in New York, and declared that State was doing more than any in the world for common schools. He fails to notice that the leading educational spirits in that State had been men and women from New England. The original common-school legislation in New York was pushed through by a group of Connecticut born and bred members of the legislature,

the first State superintendent of schools, in 1820, being Gideon Hawley, of that State. Dr. Eliphalet Nott and Mrs. Emma Willard were the pioneers of the great reforms in the higher education of young men and women. The later movement that culminated in the results so highly estimated by Mr. Mann originated in western New York, where the New England element was an overpowering influence. Wadsworth, May, Hosmer, Dwight, and Page, and others too numerous to mention, were the leaders in the great revival contemporaneous with Mann. It is true that, in the outward arrangements of the common school the Empire State displayed that characteristic energy and skill of executive capacity in public affairs in which it was always foremost in the Republic. Its system of common-school supervision, local, county, and State, was well planned. Its legislatures were more generous than those of other States, and its teachers somewhat better paid. But there, as always in this and other directions, the prodigious power of local administration in which New England has always excelled, with less display of educational machinery, has secured better results in the actual schooling of the children.

The tenth report of the secretary was chiefly concerned with the educational history of the Commonwealth. It was a carefully prepared and admirably written document. It showed the gradual steps by which the State had advanced from the original law of 1647 in which the radical idea of universal education was shadowed forth until the establishment of the State board of education, almost two hundred years later. Like all the secretary's reports, each a laborious and exhaustive treatise on some aspect of public education, this should be taken out of its hiding place in the volume of his collected works, reprinted in a cheap pamphlet form and widely circulated. There is no writing on education to-day superior to volumes that were produced through these notable years of the great revival. Certainly in the power and elaboration with which the general idea of the American common school was presented, the breadth of view in the discussion of school government and administration, even in the treatment of improved methods of instruction, we shall find little to equal and less to surpass the works of Horace Mann. His pen seemed to move by a power without himself. For nine years he edited the Common School Journal and wrote a large portion of its contents. His correspondence was immense. His home became a sort of "intelligence office" in educational affairs, thirty letters a day being his common diet. He had achieved the foremost place in the admiration and reverence of the American educational public, as the chief administrative representative of the reformed common school, and was known abroad as no other educational leader in our country has been even until the present day.

In 1847, in his eleventh report, he returns to his favorite theme of the relation of the common school to public prosperity, and discusses this topic with his usual thoroughness, enthusiasm, and power of concentration. He says: "Far more has been spoken and printed, heard and read on this theme within the last twelve years than ever before, were it all put together, since the settlement of the colonies." "Spain has handled more gold and silver than all the other nations, but is now the poorest nation in Christendom." "Ignorance is fatal to prosperity." "Reading and writing are not education; the habit of publishing statistics of education predicated on reading and writing reveals the false idea of education." In 1847 there was not a common school in Massachusetts where the Bible was not read, although not required by law.

The time was now approaching when the great secretary could afford "to take account of stock" and estimate the outward results of his ten years of such labor as few men have given to the cause of education in any country. In his last report, 1848, he goes over again the wonderful record of popular education in the material development of the people. During the eleven years of his administration $1,000,000 had been expended in the building and repairing of schoolhouses,

more than the entire school property of the State was worth in 1837. A corresponding improvement in all the sanitary arrangements had been witnessed. Three State normal schools had been established—at Lexington, afterwards West Newton; Barre, afterwards Westfield; and Bridgewater—all under superior teachers and all sending forth a class of graduates who every year have done remarkable work, not only in Massachusetts, but all over the Union. The establishment of the teachers' institutes and gathering of teachers' associations inaugurated one of the most effective agencies for the uplift of the profession.

The Common School Journal was without question the ablest and most influential organ of the great revival, and its volumes to-day are a model of what a journal of education should be. He had waked up a powerful interest in popular education among the leading men of the State, all of whom, almost without exception, were ready by voice and pen to forward the enterprise. The school laws of the State had been revised, especially in the interest of a more effective administration by the school committees of the rural schools. The proper graded system was being established in all the large villages and cities. A great reform in school government and discipline had been inaugurated, especially in discarding the use of prizes and destructive emulation and the decline of corporal punishment. A decided advance had been made in primary education in the direction indicated by Mr. Mann in his report on the German schools. The old wasteful habit of a multiplicity of schoolbooks had given way to a uniform series of improved text-books. The movement for the establishment of school libraries had borne good fruit, perhaps the most reliable result being that out of this was developed the free town library, now almost universal through the State. The local appropriations for education had steadily increased with the larger attendance on school and greater length of school terms. Half the school population of Boston was already gathered from the new foreign immigration, and the problem of the church parochial against the common school was coming to the front.

But these general items of progress were but an index to the greatest work done in these notable twelve years. In that time the people's common school had been lifted from a questionable to an assured position of permanent superiority in the estimation of all classes of men. The administration of public education had become a subject of general public interest. Nowhere was there a trace of the apologetic tone in the spoken or written plea of the secretary, a mighty sermon eleven years long to all peoples in all portions of the domain. With a relentless severity sometimes bordering on exaggeration he exposes every defect of the present condition. But never does he waver in the assertion that all this is but the abuse of the system, due to popular indifference, professional incompetency, ecclesiastical bigotry, and the same causes that always and everywhere hinder the progress of God's kingdom on earth. We read somewhere of the palace of a great lord in England where during every hour of the day could be heard in every corner of the vast pile the music of an organ in the chapel. So through all these years of the official life of Horace Mann was the Commonwealth filled with the sound of his inspiring summons to the people to wake out of sleep and put forth the entire energy of the Commonwealth in behalf of the children. Full well did his prophetic soul contemplate the swift on-coming of the awful years of trial for the Republic. At the end of half a term in Congress he wrote: "You do not know how homesick and Statesick I am—that is, how I long to get back among the boys and girls of the Massachusetts schools." He writes Sam. J. May: "The schools will be found to be the way that God has chosen for the regeneration of the world. God is never in a hurry, but we are."

Mr. Mann had now served the State of Massachusetts eleven years as secretary of the board of education with a fidelity and consecration of ability rare in official life. His wife writes: "During all his educational life he had never allowed him-

self one day of pure recreation. If he made a visit to a friend, some educational errand was sure to lay in ambush or some plea to be entered for the furtherance of his cherished plans. He had not the art of lying fallow and thus gathering new strength for labor." She continues with a charming description of his life with the three children given to him in the providential marriage by which he obtained a home and doubtless added a dozen years to his already exhausted life. Always somewhat lacking in personal tact and the politician's art of "mixing;" even severe, stern, and almost ascetic in his social tastes: during the later years of his life a total abstainer from strong drink, tea, and coffee and a fierce hater of tobacco in any form; opposed to the recreation of dancing in the State normal schools; even uncertain about the reading of fairy tales and history by children, and never thoroughly appreciative of romance and poetry, he was always a dear lover of little children. As president of Antioch College he was probably the most approachable and thoroughly interested in every student of any great university magnate since Dr. Nott.

At the period now under consideration he was once more prostrated by the reckless habit of overwork in which he had indulged for the past eleven years. It is almost amusing, were it not so pathetic, to read his sage, positive ideas of the obligation of all men to adhere to the divine laws of physiology, as in his comment on the death of Dr. William E. Channing, while no public man in America more evidently brought himself to his grave at the very crisis of perhaps his greatest triumph than Horace Mann. But his example is only another illustration of the "higher law" of consecration to a great cause at all hazards, in obedience to which every movement for a larger life in society is advanced by the personal sacrifice of its leaders. Horace Mann was built physically for an athlete and centenarian. But he began life with fitting for college in six months, kept himself always a suffering invalid and a "light weight," though more than 6 feet high, and died at 62, because there was no more to be given.

But now came across his educational career an episode of return to the political life abandoned in 1837 to assume the office of secretary of the Massachusetts board of education. John Quincy Adams died, and from every side came up the demand that Horace Mann should consent to be elected as his successor in the House of Representatives in the Congress of the United States.

There was much to induce him to resume his political career. His preliminary work had been done as the leader of the great revival in common-school education. The reforms he had inaugurated were now well under way in the legislative body which alone had the power to carry on the work by the gradual method only possible to such progress. The terrible toil of a post in which he was both superior and subordinate in official work, the target of an opposition that as it passed over to a numerical minority lost nothing of its intensity and personal malignity; his growing interest in the antislavery cause, which after a generation of popular agitation had invaded the Government of the United States, never to let go its hold till the close of the civil war, fifteen years later; possibly an overestimate by himself and his friends of the probable influence of the chief educator of the nation tranferred to Congress; conspired to urge him to this change of life. His only chance for living seemed to be a change of work, although it might be to an even more absorbing and exhausting occupation.

He was elected, and early in the year 1848 took his seat in Congress. But the Massachusetts State board of education insisted on his retaining his office of secretary for a year to come. He soon found that "he had assumed new duties without being released from old ones." He writes from Washington that "he finds himself a sort of educational intelligence office at the national Capitol, at least thirty letters a day on topics of this sort alone to be considered and answered." He yielded to the importunity of Dr. S. G. Howe and Charles Sumner to take up the case of Captains Drayton and Sayers, on trial before a court in the District of

Columbia for abduction of negro slaves on vessels under their command. This alone absorbed a good part of his time during the first year of his residence at Washington. The demand on him as a lecturer on education, temperance, and the whole range of topics lying adjacent to his central idea could not be resisted. The result was that during the four years of his Congressional career he was one of the most laborious public men in the country.

But it can not be said that from the point of view of political statesmanship these four years in Congress were the most distinguished or useful portions of his public career. Endowed with some of the highest qualities of a great political agitator, possibly a successful statesman in a revolutionary period, he had been too long engrossed in his life work of educational reform to change his sphere of labor with impunity. As an educational statesman at a time requiring a singular union of courage, aggressive policy, and a moral enthusiasm verging on prophecy, no man in America has been so eminently successful. His criticisms and decisions indeed often brought him into sharp antagonism with his own reliable supporters and quite alienated the more "radical" fraternity, who discard "policy" in the attempt to enforce abstract truth at all hazards, though the heavens fall, wrecking the cause itself in the catastrophe. But he returned to political life at a time most inauspicious for the political reputation or even usefulness of the kind of man he was.

The tremendous controversy of the "compromise measures" of 1850–1852 was already on. The most celebrated statesmen of the period were shaken from their feet or swept out to sea by the incoming tide of civil war. Horace Mann could testify as eloquently as the most impassioned reformer against slavery, which he regarded as the one menace of the Union. But while this attitude made him the unflinching opponent of the opposition, he was compelled, by his constitutional conservatism in administration, to adhere to the party that sent him to Congress. By his support of the Hon. Robert C. Winthrop, of Massachusetts, for Speaker of the House of Representatives, and similar votes, he woke up an even more relentless hostility among people who through culture and position had been his coworkers in the educational revival at home. His opinion of the nonconforming sort in public affairs is well expressed in his words: "How strange is that hate of an evil thing which adopts the very means to secure its triumph! How strange that love of a good thing that destroys it."

But it is doubtful if Mr. Mann ever fully realized the essential difference between the position of an educator and a politician. The statesmanship of the one is not the statesmanship of the other. The fundamental office of the educator is to so develop the manhood and womanhood of children and youth through the discipline of the heart, the head, and the hand that the graduate from school shall of himself be capable of dealing with all questions of practical importance in private and public life. The central idea of republican government is that a perfectly educated people can be trusted to know their rights and meet public emergencies as they occur. The office of the statesman in politics is, with an unfaltering devotion to the eternal principles of freedom, justice, and humanity, to adjust his policy to the present aspect of public affairs and neglect no opportunity of gaining a point in behalf of the people, whatever else may be neglected. Herein is the notable superiority of the Anglo-Saxon peoples, which, during the involved and obscure battle for liberty which,

> "Bequeathed from bleeding sire to son,
> Though often lost is ever won,"

has been the author of all the progressive constitutional government now existing in the world.

American history has not yet come to a final estimate of the great patriotic statesmen of the era preceding our civil war. Certainly Mr. Mann had not the

outfit for impartial and successful political statesmanship at that critical period. In his seat in the House of Representatives at Washington, as in the office of the secretary of the board of education in Boston, he was still the great schoolmaster and educational statesman. Indeed, he was probably induced to go to Washington by the hope of establishing the national department of education which came twenty years later, and over which his friend and co-worker Henry Barnard was the first Commissioner. In his controversies with the opponents of educational reform in Massachusetts he had acquired a "short method" of dealing with a disputant, prodigiously effective under the circumstances, but quite out of place in a body like the national House of Representatives. Mr. Blaine, in his remarkable eulogy on President James A. Garfield, has set forth in striking words the mental constitution of this body and the prodigious difficulty of acquiring or exerting influence over it. Mr. Mann always appeared to the majority of its members as an eloquent and patronizing pedagogue, lecturing the Representatives of thirty-two "sovereign States" as an excitable and high-toned college president might harangue a crowd of uproarious students on the edge of a rebellion. Only once he seems to have obtained an almost universal attention by a remarkable speech on education. This address brought around him a crowd of admiring listeners and woke up a new interest in general education in many of the leading Southern Members of Congress. At the close of his first term of service he was reelected, although his attack on Daniel Webster, then at the summit of his personal popularity among the conservative classes of New England, had so estranged thousands of the most influential people of these States that he could henceforth hardly expect to live in peace at home. His call to the presidency of Antioch College, Ohio, in 1854 was a blessed reprieve from a position which would have been an endless conflict during the remainder of his active life.

But whatever may have been the influence of his great activity in the cause of liberty and union in Washington and through the country, he never doubted that his real place was at the helm of the revival in universal education. One of his most notable deliverances was a letter to Rev. D. Wright, jr., on the controversy concerning moral and religious instruction in common schools, especially as applied to the contention of the bishops of the Catholic Church. He says, "Moral qualifications, and ability to inculcate and enforce the Christian virtues, I consider to be even of greater moment than literary attainments in the teachers." He believes that such qualifications can be found among the disciples of all creeds and ecclesiastical organizations, and would only require in the teachers a wise and strict avoidance of the sectarian spirit and method. He writes: "I have always and under all circumstances held that the Bible is a book that should be introduced into our schools." His own fidelity to conscience is always to be noted. "I shall try to keep my conscience, though in so doing I may lose my office." He sees clearly that to go into politics from education is "going from the frying pan into the fire," and writes to Charles Sumner, not yet in the Senate, who is urging him on to some new effort: "I think you are rather the hardest taskmaster since Pharaoh, and I am not sure I ought to stop with that old Egyptian scamp."

To Father Pierce he writes: "I have not the slightest expectation of ever feeling any attachment for my present position. I have no idea that I can make any effective impression on the body with which I am associated. From present appearances I have not run away from correspondence on schools and education, but into it. I may have an opportunity to do an unseen work in this behalf—even greater than I have ever done before. I have seen enough already to give me even a deeper conviction of the necessity and indispensableness of education than I ever had before. It is the only way whereby a Republic can be saved."

Herein we can not doubt was this four years of political life a valuable education for Mr. Mann. It removed him from the portion of the country most favorable to educational reform to the real center of national public thought and

action and showed him, as he could well read the lesson, that it is only as a whole people is lifted up to a higher intelligence, virtue, and executive capacity that a crisis such as then confronted the American Republic can be peaceably and effectively dealt with. To his friend, Dr. Jarvis, he writes: "All the kind things you say point to what I would do, rather than to anything I have done; indeed, what I have done falls so far short of what should have been done, that I feel somewhat of an emotion of shame whenever the subject is called to my mind." His best work was now done through frequent opportunities to lecture, and among these efforts should be mentioned a splendid address before the Young Men's Mercantile Library Association, in Boston, November, 1849.

It is interesting to read his estimate of Henry Clay, then near the close of his splendid political career, though clothed in the obsolete phraseology of phrenology: "I have been studying his head. It is a head of very small dimensions. Benevolence is large; self-esteem and love of approbation are large. The intellect, for the size of the brain, is well developed. His benevolence prevents his self-esteem from being oppressive; and his intellect counteracts the action of his love of approbation, and saves him from an excessive vanity. His vanity, however, has at several periods of his life, led him into follies. He derives his whole strength from his temperament, which is supremely nervous, but with just as much of the sanguine as was possible to put into it. Considering the volume of the brain and the size of the head, it has the best adjusted faculties I have ever seen."

It is perhaps well for civilization that the average father and mother are not a pair of high-strung physiologists, even when a Horace Mann, can deliberately write such a sentence as this: "If men understood their duty, no man would have any more children than he could support, educate, and leave in an eligible condition behind him, any more than a prudent farmer would have more stock on his farm than he could support with profit to himself and with humanity to them. The launching of a human being into this world, with a moral certainty of his being unhappy and miserable, I regard a far greater crime, in the abstract, than sending a human being out of it." "In the abstract" something may be said of such a theory. But what family of industrious habits, good character, and fair intelligence in our country can predict what will be their ability a dozen years hence to educate and fairly bring up a family of children? And who can predict that any child, however and whenever born into the world, is destined to happiness or misery? Certainly, the conclusions of the extreme physiologist put into practice in the only way such a theory could be applied, by all sorts and conditions of people, would inflict on society a hardness of heart and a combination of personal misery and social demoralization compared with which the present errors in family life are not to be mentioned. The radical error, and it is a fatal error of much of our "practical" science and the pedagogy derived therefrom, is the notion that there is no Almighty love at the center of the universe that watches over the immortal life of the least child, and that the eternal destiny of anyone is wholly intrusted by Providence to any teacher, parent, or anybody.

In wide contrast to such extreme speculations we read words that touch a vital point in all teaching. "Can the pupil reproduce what you teach him? This is the all-important point in teaching. Has a lesson been so learned that the pupil can restate it in words or exemplify it in act, or draw it on the blackboard, etc." He ran against the theological animus at Albany, N. Y., where, after his own lecture had been delivered in the church of the famous Dr. Campbell, of whom President Andrew Jackson said, "Dr. Campbell and I can not live in Washington together," the church was closed against the whole course, including Theodore Parker, Drs. Orville Dewey and Andrew Peabody, and he writes, "Isn't this beautiful?" Indeed, for these political capital cities, of which Albany, N. Y., was then the most celebrated, he had little respect. After a long course of lectures in New York he writes: "I wish it were possible for some man or men to spread them-

selves over this great State and see that the children are as well taken care of as the pigs." Yet to the last he extols the Empire State as chief in the Union in its skill and zeal in organizing public education. He thinks the girls of western New York, as he saw them in their little coeducational colleges, the finest in the country. And he was doubtless greatly influenced by what he saw in the splendid country, western New York—a "revised and corrected edition" of New England—to cast in his lot with what was even at this late period "the west," Ohio. It gave him great pleasure to see that, after years of obstinate opposition and ridicule from many of the leading teachers of the deaf and dumb in our country, his ideas of instruction, put forth in his seventh report, were adopted and largely put in operation.

It was doubtless not only politically but controversially a mistake for Mr. Mann to carry his opposition to the policy of Daniel Webster to the extremity it assumed. But however elevated may have been his motives in this memorable controversy, its reaction was the practical close of his political life, and followed him like an ominous shadow to his grave. Although reelected to Congress in 1850, on the rising wave of opposition to the "compromise measures," then on the verge of enactment into law, Mr. Mann never seems thereafter to have felt at home in Washington. He had fallen upon the reaction that through the North preceded the final outbreak of hostility to the slave power, and counsels like his were not heeded at the capital. He now seems to have been oftener absent from Washington and more given to lecturing. These lectures, on temperance, education, and his favorite theme, loyalty to the divine laws of nature, were eagerly sought and were always instructive and powerful. He was greatly interested in the effort of Miss Dorothea L. Dix to move Congress to an appropriation of public lands for the education of the insane, and although this effort failed, she did succeed in obtaining aid for an institution in the District of Columbia.

In a brief letter to a young men's debating society in New York he enforces the golden rule of all true oratory and debate, that all should be for the furtherance of the truth. His coming to Washington in 1851, in his second term in Congress, with his family, was signalized by a publication of his antislavery speeches in a volume of 600 pages. This session of Congress was chiefly notable for political intrigue by the numerous candidates for the Presidency of the United States, which resulted in dropping all the prominent statesmen conspicuous in the late struggle and nominating Mr. Franklin Pierce, of New Hampshire, and Gen. Winfield Scott, of the Army of the United States, as rival candidates. Although in a measure favorable to General Scott, the candidate of the Whig party, the interest of Mr. Mann in political affairs from that date visibly declined. He was no longer in full sympathy with the party to which he had been accustomed to look for the most favorable policy in behalf of freedom, and the formation of the Republican party was yet six years away. He had been already approached in connection with the presidency of Antioch College, Ohio. His only venture as a maker of schoolbooks was at this period, in a laborious effort to prepare a series of arithmetical text-books on a new principle. The idea, as we get it, seems to have included or implied the present enlarged method of instruction in mathematics. His correspondence with Mr. Downer, of Boston, George Combe, and others on public affairs is so rich and illuminating that it is a matter of great regret that we have not larger extracts from it in the biography prepared by Mrs. Mann.

Especially is it little less than a calamity to education that his entire correspondence with Henry Barnard, the only American educator of that period to be compared in eminence with himself, should have been lost. We do find in a letter of introduction of Mr. Barnard to George Combe a whole-hearted tribute to the merits of his great colaborer. He writes: "If you will put double all the credit you have ever given to me and pass it over to Mr. Barnard's account, you would hardly do his extraordinary services more than justice. His mind is full of wisdom, and his life has been full of devotion to this subject." In February, 1852,

on a lecturing tour in eastern New York, he first met Rev. Austin Craig, then a young clergyman 28 years of age, with whom his whole after life was singularly connected, whom he loved as a younger brother, and finally became associated with in his work at Antioch College. As already mentioned, about this time, in a lecture tour through western New York, his attention seems first to have been seriously attracted to the subject of the coeducation of the sexes in college. In several of the higher academical institutions, then misnamed colleges, he found a state of affairs that profoundly impressed him and opened new vistas of usefulness. From this tour of twenty-five successive nights of public speaking and visitation by day he returned to Washington "in better health than when he left."

As early as May, 1852, his attention had been called to the projected establishment of a college by the religious body known as Christians at Yellow Springs, Ohio. In a letter to Rev. Eli Fay he writes: "No event of my life has ever caused me more deep and solemn anxiety than the applications to become the candidate for the presidency of your proposed college at Yellow Springs, Ohio. * * * Miss Catharine Beecher prays, if I want any more comfort in this life, that I will not try to build up a college at the West, and she says Prof. Calvin Stowe held up his hands in deprecation of the thought."

But the idea, from the first, had taken a deep lodgment in his heart. He regretted that he "could do no good at Washington." The return to educational work in Massachusetts, after his break with the formidable body of conservative influential people in Boston, was practically impossible. The prospect of success in any coming change in public affairs was not brilliant, although Charles Sumner had been elected to the Senate of the United States by a combination that had removed Robert C. Winthrop permanently from public life, to the great advantage of education by the splendid services of this most accomplished of New England statesmen through the closing thirty years of his life as president of the Peabody Education Fund. The West, for Ohio was still regarded a Western State, opened the most inviting sphere of activity commensurate with the ability, reputation, and aspirations of Mr. Mann. The death of Robert Rantoul, jr., his old associate in the board of education in Massachusetts, almost at his entrance on a distinguished public career as a Member of Congress, seems to have given the final direction to his wavering determination. From this moment his mind was more and more engrossed by the thought of the new life beckoning from beyond the Alleghanies. On April 15, 1852, the crisis came. Mr. Mann was nominated by the "Free Democracy" of Massachusetts for governor of the State. He received the offer of the presidency of Antioch College, Ohio, on the same day. He accepted the latter office without hesitation. This decision finished his political career. For the coming years of his life he was plunged heart and soul in his crowning work, which may well be styled the revival of the Western American college.

Horace Mann was in his fifty-seventh year when, on September 15, 1852, he was nominated for governor of Massachusetts on an independent political ticket, and on the same day accepted the invitation to the presidency of Antioch College, at Yellow Springs, Clark County, Ohio. With no abatement of zeal for the political opinions for which he had contended with all his might during the four years of his Congressional life, he had become fully convinced that the impending crisis in national affairs had not yet culminated and that as a candidate for governor of Massachusetts, doomed to certain defeat and beyond any other public man politically obnoxious to the solid conservatism of the State, led by the great Senator, Cabinet minister, and Presidential aspirant, Daniel Webster, his status as a politician would henceforth be located at zero. And, as if destined to emphasize his retreat from public life, about this time he had been drawn into perhaps the most exasperating and personal public controversy of his life, with Mr. Wendell Phillips, representing the extreme wing of the Garrisonian antislavery movement.

Evidently there was nothing to be done but to turn his eyes to some new phase of the educational revival in which he was still acknowledged by all competent judges to be the leader who represented most completely the position of American educational statesmanship.

That he accepted the offer of the presidency of what was then a new Western college with joy and found in its contemplation a new lease of life can not be doubted. The first meeting of the faculty, already elected by the trustees of the institution, with the exception of two of his own friends nominated by himself, at his residence in West Newton, Mass., was harmonious. He left the State early in September, 1853, "weeping like a child," as he turned his back forever on the Commonwealth to whose uplift he had consecrated the best years of his life and which later placed his statue, erected by the contributions of the school children of Massachusetts, on the capitol terrace opposite that of his old antagonist, Daniel Webster—fit representatives of the conservative political and progressive educational types of statesmanship by which the Bay State has risen to her present exalted position among the Commonwealths of modern times.

There was much to attract Mr. Mann to this new field of labor in the West. Antioch College was established by the religious denomination of Christians, then a numerous and growing body, especially in the region commanded by this its first institution of the higher learning. Yellow Springs, Clark County, Ohio, was then a rural hamlet, clustered about a well-known summer resort, in a beautiful and fertile quadrilateral, inclosed by the Ohio, the two Miamis, and the Mad river, 60 miles north of Cincinnati, between the present flourishing cities of Springfield and Xenia. It seemed almost an ideal situation for the college, which its new president beheld in vision as he set his face toward "the great West." The institution was situated almost in the center of the most densely populated portions of the three Western States—Ohio, Indiana, and Kentucky—and perhaps more central to the constituency he hoped to attract than any locality beyond the Alleghanies. Good living was very cheap, the climate genial, the natural conformation of the country attractive by its scientific interest to the geologist and the botanist, easily accessible to the city of Cincinnati, still, in 1853, the center of culture in the vast region beyond the mountains. The religious denomination that founded it was known as theologically the most progressive among the evangelical churches of the North and Southwest, with only the Bible as a creed, and an increasing section of its younger clergy and educated laity pledged to freedom of Scripture interpretation and a progressive policy in the higher education. It had been decided that the college should be coeducational and with no distinction of race, in these respects perhaps the only considerable foundation of the higher education in the West, save Oberlin, Ohio, which had taken that position. It had also "broken the record" as the first of the important Western denominational colleges that had elected a layman to the office of president. It had "struck twelve" by inviting the foremost common-school educator in America, despite his political entanglements, to what must necessarily be very largely the personal administration of a new experiment, and he had been permitted to bring several teachers of his own selection and to inaugurate his own method of college instruction and discipline.

The present system of free high schools was then hardly established in the West out of the cities, and the majority of the academies and colleges of all these States of the North and Southwest were strictly sectarian and generally in no respect of high reputation. The rising University of Michigan was the only State university in the Northwest that had attracted the attention of the educational East. Never before or since has there been a more interesting opportunity to establish a college of the higher grade of scholarship, free from the trammels and traditions that still bound the higher education of the original thirteen States in allegiance to the old British ideals. Only thirty years before, at the University

of Virginia, under the leadership of the venerable Thomas Jefferson, and thirty-five years later, in Tulane University, New Orleans, La., under the presidency of William Preston Johnston, has such a peculiar opportunity offered itself to an American educator.

All this Mr. Mann appreciated. His twelve years' service in the revival of the common school in New England had trained him in the advanced ideas and policy of the elementary, secondary, and normal school. His four years' service at Washington had made him thoroughly acquainted with the progressive and energetic spirit of the Northwest and its desire for a higher and broader type of college and university life than had hitherto prevailed. He was always unmindful of pecuniary reward, though always ridden by an almost fanatical sense of public and private pecuniary obligation. This was a serious personal disadvantage when his pecuniary interest conflicted with his sacred obligation to the good cause of the uplift of the coming American generation. He probably was not sufficiently informed of the fact that the obstacles to such an enterprise as that in which he was now embarked were necessarily greater in the new than in the older section of the Union. He went forth to the closing five years of his glorious career, which, despite all the disasters and discouraging features in the material affairs of Antioch, was perhaps as memorable in its relations to the system of the higher education in the West as his earlier and more public work to the common school in New England.

He found the progressive people of the West and Southwest ready to welcome him to the leadership in the revival of the higher education in the States tributary to Antioch. He was inaugurated as president in October, 1853. His inaugural address, of which Thomas Starr King wrote him from Boston, "There is vitality enough in your inaugural to make a college thrive in Sodom," was delivered to an enthusiastic open-air assembly of 3,000 people. Standing on the front steps of the main college building, the already venerable president received a gift of three Bibles for the use of the different departments, and in reply set forth in eloquent and significant words the idea of the founders of the institution, on which hinges the entire history of the higher Christian education in the Republic. The tables of the unfinished dining hall were cleared of the fragments of everyday use and spread anew with the examination papers of the 150 young people who applied for entrance, only 8 of whom were organized into a freshman class. His own scheme of administration, as concerned with the courses of study, discipline, and the general management of the educational and religious affairs of the institution were accepted. His original plan included a thorough department of pedagogics for the training of teachers, the preparatory classes being utilized as a general practice school. This arrangement would have placed Ohio at the head of the West in this great reform. More than 1,000 young people applied for admittance during the first year, representing all the Western and Southwestern States, with a strong contingent that had followed him from the Central States and New England. That there might be no bar to success on the religious side, Mr. Mann consented to the ceremony of baptism and became a member of the Christian denomination, thereby assuming the office of college preacher and professor of natural theology and philosophy.

But from the first the new college bore within itself the seeds of financial ruin. Like so many of the new schools of the Western and even the older Middle States at this period, it had been established on the financial "delusion and snare," a numerous body of holders of "scholarships," each of whom had a vote in the election of trustees. This small sum of a scholarship of $100 with an indefinite payment, and only the annual interest available for the support of the institution, was, of course, a foundation of sand, especially as each holder of a scholarship was entitled to send a student virtually free of tuition charges. A beautiful wheat field of 20 acres had been given for a college campus, and buildings had

been projected and partially erected on credit. The Christian denomination was comparatively poor and unaccustomed to a canvass for contributions to a seat of the higher learning. It was soon evident that from the West little financial aid could be expected, as each Christian body in that vast area was already overburdened with its own enterprises, and the uncertain financial condition reported by the administration failed to commend itself to the comparatively few people of wealth not already interested in sectarian foundations.

This is not the place to rehearse the melancholy financial history of Antioch College during the few years of the presidency of Horace Mann, notably the years when it stood up beyond the Alleghanies as an object lesson in the revival of the higher education. Suffice to say that, after herculean efforts, the president for more than a year receiving no salary, the impending failure came upon it in 1857. This crisis was "tided over" until 1859. At the commencement of that year a new corporation was formed, largely by the influence of distinguished Eastern friends, Rev. Henry W. Bellows, of New York; Dr. Edward Everett Hale, of Boston, and eminent laymen representing all portions of the Northern States, with timely and efficient support from the churches and people of the Unitarian faith in Boston, New York, Brooklyn, Chicago, and Cincinnati. A new board of trustees was chosen, undenominational in its character, though with a generous recognition of the original Christian constituency. Mr. Mann was reelected president, and, had his life been spared, the prodigious educational success of Antioch College would for the first time have enjoyed the solid foundation of a reliable financial establishment.

But the earthly service of a twenty years' leadership in the great educational revival of the Republic was finished for Horace Mann. He died, and with his departure his beloved institution gradually subsided into the position of hundreds of our new American educational enterprises, though Antioch has always retained the radical ideal of its founder. At present, after a varied history, it remains a respectable institution of learning, under the management of its original friends, chiefly attended by the youth of the Christian denomination in the South and West.

Neither is it profitable to recall the personal trials of President Mann and the painful embarrassments of his educational administration by the obstinate jealousies and the persistent opposition of adverse elements in the body of administration and instruction. All this is an old, old story in the history of numerous American colleges. But apart from the financial weakness, this would not permanently or seriously have interfered with the final success of Antioch. For Horace Mann was no tyro in the arts of public controversy or in the skillful manipulation of the varied elements of an administrative educational policy in the face of any or all forms of opposition. As it was, he carried his point in every conflict of this sort, weeded out of the field the incompetent and hostile members of the faculty, and splendidly vindicated his own theory of instruction and discipline. Had his life been spared he would have been, under the new management, in the full and almost unquestioned possession of an almost despotic control of the college.

As it was, Antioch College has sent forth, as teachers and promising students, one of the most reliable groups of young men and women ever graduated from an institution of learning beyond the Alleghanies. Four thousand students had passed through the college during the five years of President Mann's administration. At its first commencement a larger number of graduates appeared than in any of the schools that claimed the title of college in Ohio at a similar age, except Oberlin, in the northeastern portion of the State. And it is doubtful if any institution of learning west of the Alleghanies had, during this period, produced a greater number of promising graduates, especially teachers, than this child of the professional old age of Horace Mann. Even to-day, a generation from the death

of Horace Mann, the writer of these pages in his educational journeyings through the Southern and Western States, finds himself often in contact with eminent men and women in all professions who hail from the old Antioch hive. The college has sent from its body of professors and students college presidents to Harvard, Clark, and Wellesley, Massachusetts; an acting president to Cornell, in New York, and a president to the State University of Ohio, with numerous distinguished college professors, common-school superintendents, and eminent teachers in the higher seminaries of learning in many portions of the country.

The secret of the powerful and peculiar influence of Antioch College is found in the character and ideals of its first president, Horace Mann. The Northwest of forty years ago had not yet reached the undeniable superiority in the acceptance and development of the new education in the common school, and to a remarkable degree in the administration of several of its leading universities, which is now accorded to it by universal consent. Horace Mann went to Ohio as the best representative of the application of the superior new common-school American ideals to the higher education. He went as a layman, and to his last day was practically a lay educational statesman, standing on a college platform, the president of a coeducational college which offered even to the proscribed colored race the full opportunity of the higher student life. But to few of the leaders of education in these vast new Commonwealths was revealed the lofty and broad ideal of college life that he brought with him. Theodore Parker wrote to him: "I think Massachusetts had no seed in her granary which the West needed so much as yourself. Now God has sent you to Ohio, I look for a great harvest." That "seed" was the idea, never before so firmly held and wrought out with such invincible courage by the policy of the highest educational statesmanship—that the college and university are not a world by themselves, an educational realm set apart by a superior class insisting on a position that virtually leaves the people's common school a far-off, unrecognized region for the use of the "common herd." Antioch College was educationally reared, from corner stone to roof, on the broad foundations laid for the people's common school through the dozen years of the powerful and wise administration of Horace Mann as the first secretary of the Massachusetts board of education.

The spirit that flowed through it was free, broad, and catholic, thorough as the best of old Harvard, but expanded, adjustable, open to every race and both sexes, administered by men and women, with a transferal of all the improved methods of the common school to the conditions of a college in that portion of the country, already, from its magnificent demonstration of ability in affairs, indicated for leadership in the coming struggle for the salvation of the Union. Although the original plan for a great department of pedagogics was not realized, the entire seminary was perhaps the best general training school for teachers then set up in America. President Mann himself characterized it as "a college with the drill of West Point and the methods of the New England normal school." The result was the graduation of several hundred men and women who everywhere have "struck fire" as leaders in the professional and educational life through vast regions of the Republic, and the adoption of the educational spirit and methods associated with the career of Horace Mann by all the leading colleges and universities of the West.

But the most notable superiority of Antioch College was the triumphant success of the plan of self-government introduced by the president. From the old times when corporal punishment was administered at Harvard in the presence of the faculty arrayed in cap and gown by the president after a religious service, down through the reformed administrations of presidents Dwight of Yale, Nott of Union, and Wayland of Brown, there had been a steady growth of the idea that a college student is not necessarily an incarnate devil in ambush, on the watch for an opportunity for some novel display of mischief or wickedness, but an average boy,

the exception of Oberlin and Marietta, exceeded those of any other at the same age. More than 1,000 students have left us, and among them all scarcely one who has been with us long enough to imbibe the spirit of the place has left us a dogmatist or a bigot. There is a strong but a sober spirit of attention to religious interest among our students. The moral character and conduct correspond. On the east side of our grounds, and immediately adjoining them, is a farm of 400 acres, with gardens, vineyard, and orchards of trees, and on the northwest a large flower and fruit garden. On the southwest a Frenchman raises choice fruits for the market. Not one of these, for two years, has lost an apple, a peach, or a grape. Our dormitory, nearly filled with male students, has no teacher or proctor or overseer. In study hours it is as quiet as your house. We have no rowdyism, no drinking of intoxicating liquors, no gambling or card playing, and we have nearly succeeded in exorcising profanity and tobacco. All our faculty, except myself, are young (and I feel so), and are well qualified for their places and filled with a generous enthusiasm. Two of our professors are ladies."

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To his beloved "Timothy," young Eli Fay, he said: "Preach God's laws; preach them; preach them. Oh, God, may you preach them until the light drives out the darkness." Of Professor Carey, now president of the Unitarian Theological Seminary at Meadville, Pa., he said: "Dear Carey—solid, steadfast, well-beloved, always wise, always right, always firm—tell him how much I loved him. Good, reliable, firm, gentle, beautiful Mr. Carey. And those good young men who have always done their duty, how I love them! Tell them how I love them. No words can explain how I love them." When asked if he were not exhausting himself, he replied: "No; it rests me." He said to Mr. Fay: "I should like to have you make a short prayer—low, peaceful, grateful."

Death came at last, not with bodily peace, but, as he had lived, through hours of labor, struggle, and delirium. The strong brain found it hard to die. At last God mercifully gave him rest; but death is not the word for such a translation.

CHAPTER XVI.

HENRY BARNARD.

By Rev. A. D. Mayo.

Foremost among the educational leaders during the great revival of the common school in the United States which ushered in the second half century of its existence under the national life, by common consent, must be ranked Horace Mann, of Massachusetts. This notable movement of educational revival and reconstruction began in the State which first established the people's common school, in the early colonial period, and had most thoroughly sustained it during the first half century of the national existence. And while the State of New York did somewhat anticipate this great movement in the establishment, in 1820, of a State superintendency of common schools, with some features of improved local organization, the subsidizing of academies for the instruction of teachers, and the formation of school libraries, yet the establishment of the Massachusetts board of education and the appointment of Horace Mann as its secretary placed the State of Massachusetts at the head of the reform which lifted the district school of the old time to the modern graded school, planted the two first State normal seminaries, set on foot the good work for the general improvement of schoolhouses, introduced superior methods of instruction, and, above all, secured the exaltation of the people's common school to its present condition as the central and most potent factor in the American system of universal education. Through twelve memorable years Horace Mann stood before the country beyond all others representing that educational statesmanship which is perhaps the most original and powerful feature of the American common school. It has seemed well to set forth in detail the remarkable work of this great educator, not only in justice to his own services, but as an object lesson of what is, in its aim, spirit, and method of operation even to-day the most imperative need of the common school through half the Union.

But it is important to understand that another work than that of Horace Mann was essential to the complete inauguration of this memorable era in American education which, perhaps more than any other influence, is responsible for the best elements of our present national civilization. Up to the year 1830 the American common school had been in a state of transition from the old-time British and Continental ideas to its own peculiar status as a vital product of the new American life. It may in a certain sense be said that the original district school of New England was suggested by the system of parochial schools for the people already established in Scotland and in some of the nations of the Continent of Europe. The New England grammar school was, as far as method of organization and instruction went, almost a copy of the private, corporate, and church grammar schools in England where the foremost of the leading colonial fathers had been educated.

The one radical difference, however, between the New England common school and its European predecessors was that, in all essential respects, it was a people's

influenced by what he saw during his short visit to Europe, although hindered in his investigations by the lack of a speaking knowledge of the Continental languages. Still, no man so correctly as he, at any time, has set forth the radical differences between the European and American idea and executive management of all classes of schools, a difference so often ignored by numbers of scholarly observers since his day.

The time was ripe in our country for the appearance of a great national representative of the literary side of popular education. There was an imperative need of a man of large native capacity, broad culture, and catholic temperament, competent to gather into his capacious mind the entire condition of educational affairs in all civilized lands; a man by birth, education, and social connections commended to the educated class of the whole country, yet of a patriotism so intelligent and intense that he should be found ready to cast in his lot as a day laborer, and, if need be, a martyr in the supreme cause of the uplifting of the masses in this Republic. He should be one who could set before every class of earnest and active teachers and educational workers the best results of educational thought and activity through Christendom in a form that would strongly commend itself to the foremost minds at home and abroad.

Such a man was Henry Barnard, of Connecticut, the great colaborer and complement of Horace Mann. It was fitting that the two American colonies which had first established the people's common school, and held fast to it through the entire colonial period, should give to the country these two great men, representing the segments of the complete circle of the national education: the encyclopedic literary genius that set before the public a complete picture of the world's best educational teaching and doing, and the educational statesmanship that planted in the conservative soil of New England the reconstructed common school which has been adopted as the most precious heritage of that section to the building of the new Republic.

Henry Barnard was born in Hartford, Conn., January 24, 1811, in the home of his ancestors, still the home of his old age. At the time of this writing, 1898, his age is 87. From his entrance into Yale College at the age of 16, his life has been a period of almost incredible activity. During its first half century it was largely engrossed in educational superintendence and the supervision of institutions of learning of all grades. But as the years have gone on he has been more occupied in the prodigious labor of building up the great storehouse of educational material, which has been declared by the highest European authorities the most extensive and reliable literary contribution to general education ever made by one man. While it may not be claimed that his labors as an educational administrator have surpassed those of others, they have yet been of great importance.

But the especial claim of Henry Barnard to national renown has been the direction of his mind to the crowning work of his life—the editorship and often authorship of the great American Encyclopedia of Education, the 50 volumes of the American Journal of Education. While still, in some ways, the most reliable authority for what has been done in departments of educational activity abroad, the peculiar merit of this vast work is found in the keen and practical sense displayed by its compiler in the special manifestations of educational life from the earliest years in our own country. Nowhere else can be found such a number and variety of interesting monographs respecting the growth of the educational spirit and organization in the different States of the Union. While diverted from his early determination to write the history of education in our country, Mr. Barnard's collection of material is itself the most complete picture of the educational life of a nation in literature. And now, through the preparation of an analytical index published by the Bureau of Education, this great

occasionally difficult of management, but accessible to the persuasive power of an administration of reasonable authority tempered with fatherly affection, aiming at the manly self-culture which is the basis of the highest American citizenship. It was reserved for Horace Mann, as the most notable achievement of a life crowded with victories over venerable delusions in education, to inaugurate and carry to a complete success a college discipline which was neither more nor less than gathering several hundred young men and women from the portions of the country least accustomed to parental and school control, including many who came with exaggerated and eccentric notions, not only of young men's and women's "rights," but of college freedom as "the right to do what anybody pleases," and teaching them how to become men and women fit to control the destinies of such a country as this Union was on the way to become.

Mr. Mann's favorite idea of the mischievous influence of school government by emulation was the soul of his method. He said: "Emulation makes bright scholars, but rascally men of affairs." Almost every morning, at the opening religious service of the college, he placed before the assembled students some new and often startling illustration of the highest ideal of an education founded on a sacred regard for the eternal laws of God, with such eloquence and fitness of appeal, such terrible sarcasm over sin and folly, with such splendid encouragement, aid, and comfort for every good resolution and reputable effort as was well nigh irresistible.

He gathered the members of his lower class about him in his own home, and by long and patient argument and entreaty persuaded them to agree to a combined effort at self-government, truthfulness, and obedience to law without the machinery of college spies and proctors and the wearisome conflict of wits between student and professor that discipline in so many colleges had become. His most difficult undertaking was the effort to change the regulation college idea of "honor" between students to the belief that their first duty and obligation was to the institution of which they were members. This obligation of honor should prevail in any matter that threatened the reputation of the college, whatever might become of the inclination of the students to stand by one another in the concealment of offenses against its law. Relentless and threatening as the judgment day against persistent wrongdoing and malignant opposition, he forbore with an almost divine patience with the crude manners, half-digested notions, and foolish and disobedient conduct of the weaker members of his little commonwealth.

Stern and resolute, sometimes brusque and even discourteous to his equals and opponents, he was always the confiding father of every student. He brought to Antioch many of the greatest men of the country as lecturers and visitors, and always gave to every student the opportunity of a personal meeting and hand clasp with the distinguished guests. But none of these men could sway, inspire, and draw all hearts after him by any spell of eloquence like himself. Many a boy sent to him as a final experiment in his education was won over to the right, and even those he was compelled to send away were often reformed by their last humiliation, and came to revere his memory. He seemed to live in the innermost life of every youth intrusted to his care. And so mightily did he prevail, that not only was Antioch, despite the perpetual malign influence of its enemies, some of them on the ground, perhaps the most enthusiastic and loyal body of students in the Union, but in the suppression of the ordinary vices of student life it has never been equaled and, until to-day, never surpassed. With none of the ordinary devices of penal government, he succeeded in making his student community probably the most orderly, courteous, and agreeable collection of 500 young people in Ohio or any State.

He writes to Samuel J. May in 1858: "At our first commencement we graduated more than the average number of the foremost eleven colleges in Ohio, and, with

the exception of Oberlin and Marietta, exceeded those of any other at the same age. More than 1,000 students have left us, and among them all scarcely one who has been with us long enough to imbibe the spirit of the place has left us a dogmatist or a bigot. There is a strong but a sober spirit of attention to religious interest among our students. The moral character and conduct correspond. On the east side of our grounds, and immediately adjoining them, is a farm of 400 acres, with gardens, vineyard, and orchards of trees, and on the northwest a large flower and fruit garden. On the southwest a Frenchman raises choice fruits for the market. Not one of these, for two years, has lost an apple, a peach, or a grape. Our dormitory, nearly filled with male students, has no teacher or proctor or overseer. In study hours it is as quiet as your house. We have no rowdyism, no drinking of intoxicating liquors, no gambling or card playing, and we have nearly succeeded in exorcising profanity and tobacco. All our faculty, except myself, are young (and I feel so), and are well qualified for their places and filled with a generous enthusiasm. Two of our professors are ladies."

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In the morning he was told that his end was near. He lifted himself in his bed and said: "If that is true, I have work to do." He called his wife and children to his bedside, saying to each of his boys: "When you do not know what to do, ask

yourselves what Jesus Christ would do in your place." To all the faculty of the college present he gave his parting message concerning "my beautiful plans for Antioch." Then all doors were thrown open for two hours, and every student and everybody who would come was admitted. To each student some word of hope, warning, or inspiration was briefly spoken. To one who had been a great trouble to him and still was a doubtful case, he said: "What will you do with that splendid head of yours? Consecrate it. Let me consecrate it." And he laid his hands upon his brow in a final blessing.

To his beloved "Timothy," young Eli Fay, he said: "Preach God's laws; preach them; preach them. Oh, God, may you preach them until the light drives out the darkness." Of Professor Carey, now president of the Unitarian Theological Seminary at Meadville, Pa., he said: "Dear Carey—solid, steadfast, well-beloved, always wise, always right, always firm—tell him how much I loved him. Good, reliable, firm, gentle, beautiful Mr. Carey. And those good young men who have always done their duty, how I love them! Tell them how I love them. No words can explain how I love them." When asked if he were not exhausting himself, he replied: "No; it rests me." He said to Mr. Fay: "I should like to have you make a short prayer—low, peaceful, grateful."

Death came at last, not with bodily peace, but, as he had lived, through hours of labor, struggle, and delirium. The strong brain found it hard to die. At last God mercifully gave him rest; but death is not the word for such a translation.

CHAPTER XVI.

HENRY BARNARD.

By Rev. A. D. Mayo.

Foremost among the educational leaders during the great revival of the common school in the United States which ushered in the second half century of its existence under the national life, by common consent, must be ranked Horace Mann, of Massachusetts. This notable movement of educational revival and reconstruction began in the State which first established the people's common school, in the early colonial period, and had most thoroughly sustained it during the first half century of the national existence. And while the State of New York did somewhat anticipate this great movement in the establishment, in 1820, of a State superintendency of common schools, with some features of improved local organization, the subsidizing of academies for the instruction of teachers, and the formation of school libraries, yet the establishment of the Massachusetts board of education and the appointment of Horace Mann as its secretary placed the State of Massachusetts at the head of the reform which lifted the district school of the old time to the modern graded school, planted the two first State normal seminaries, set on foot the good work for the general improvement of schoolhouses, introduced superior methods of instruction, and, above all, secured the exaltation of the people's common school to its present condition as the central and most potent factor in the American system of universal education. Through twelve memorable years Horace Mann stood before the country beyond all others representing that educational statesmanship which is perhaps the most original and powerful feature of the American common school. It has seemed well to set forth in detail the remarkable work of this great educator, not only in justice to his own services, but as an object lesson of what is, in its aim, spirit, and method of operation even to-day the most imperative need of the common school through half the Union.

But it is important to understand that another work than that of Horace Mann was essential to the complete inauguration of this memorable era in American education which, perhaps more than any other influence, is responsible for the best elements of our present national civilization. Up to the year 1830 the American common school had been in a state of transition from the old-time British and Continental ideas to its own peculiar status as a vital product of the new American life. It may in a certain sense be said that the original district school of New England was suggested by the system of parochial schools for the people already established in Scotland and in some of the nations of the Continent of Europe. The New England grammar school was, as far as method of organization and instruction went, almost a copy of the private, corporate, and church grammar schools in England where the foremost of the leading colonial fathers had been educated.

The one radical difference, however, between the New England common school and its European predecessors was that, in all essential respects, it was a people's

seminary, established, supported, supervised, and above all filled with the spirit of the responsible body of the New England people which from the first created the school, church, and state in this corner of the New World. But in process of time the common school of New England and of the North had drifted far away from its old European models. In every Northern State it had been modified by the prevailing opinions and imperative necessities of the time. There was, however, a very imperfect knowledge of what was being done among the different States that had adopted this method of popular education; and outside a few rather feeble attempts, no real cooperation was obtained between its foremost teachers and officials.

Meanwhile a great movement for popular education had come up on the continent of Europe. Led by Prussia and other German States, it had made its way to France and invaded the neighboring kingdoms of Holland, Denmark, and Sweden. A vast literature had sprung up around the works of Rosseau, Pestalozzi, and the group of voluminous educational writers waked into life by their radical theories. And although England has not been prominent as a leader in every progressive movement for the fit schooling of the whole people, yet in the British Islands, notably in Scotland and Ireland, a remarkable educational literature had arisen.

It was of the first importance that now, when the American people were becoming thoroughly aroused to the necessity of a complete reorganization of their entire system of universal education, they should know what had been accomplished and what was being widely discussed elsewhere. While everything in state, church, and society that comes to us from abroad must undergo a thorough examination and adaptation to the peculiar needs of our republican civilization, it is only a perversion and caricature of patriotism that resists the acceptance of the best thought and life of all peoples for the enlargement and enrichment of our own. This Republic has a claim to all that is good and true which has been achieved by the entire experience of mankind. And in no department of the national life is this experience more valuable than in the realm of popular education, which is the soul of a people's order of society.

Even before the period now under consideration, more than is generally understood, the improved methods of school organization and instruction had been introduced into the country. Thomas Jefferson and Joseph Cabell, of Virginia, had brought from their residence abroad a considerable acquaintance with the university life of the Continent, and Cabell had visited the schools of Pestalozzi. Rousseau was no stranger to an increasing circle of readers, for whom the radical literature that preceded the French Revolution had great attractions.

As early as 1817, Judge Archibald D. Murphy, of North Carolina, had presented to the legislature of that State an elaborate system of popular instruction, the fruit of his studies and observations in the United States and Europe. Many of the presidents and professors, especially of the Southern colleges and academies, were from Great Britain, and occasionally from the Continent. The Moravian brethren of Pennsylvania had introduced the educational ideas of their great bishop, Comenius, in their own denominational schools. Joseph Lancaster had worked and died in the United States. Neff had established schools in Pennsylvania and the West according to the improved system of Pestalozzi. Mrs. Emma Willard had traveled abroad, and brought home advanced methods for the higher education of girls. Before the general court of Massachusetts had moved, the legislature of Ohio had authorized Prof. Calvin Stowe to make observations in Germany, and his account of what he saw there had been published and republished in this and several other States. Professor Bache, in the interest of Girard College, Philadelphia, had made one of the most reliable reports of the method of training orphans, and the improved elementary and secondary school methods in Great Britain and on the Continent. Horace Mann was himself greatly interested and powerfully

influenced by what he saw during his short visit to Europe, although hindered in his investigations by the lack of a speaking knowledge of the Continental languages. Still, no man so correctly as he, at any time, has set forth the radical differences between the European and American idea and executive management of all classes of schools, a difference so often ignored by numbers of scholarly observers since his day.

The time was ripe in our country for the appearance of a great national representative of the literary side of popular education. There was an imperative need of a man of large native capacity, broad culture, and catholic temperament, competent to gather into his capacious mind the entire condition of educational affairs in all civilized lands; a man by birth, education, and social connections commended to the educated class of the whole country, yet of a patriotism so intelligent and intense that he should be found ready to cast in his lot as a day laborer, and, if need be, a martyr in the supreme cause of the uplifting of the masses in this Republic. He should be one who could set before every class of earnest and active teachers and educational workers the best results of educational thought and activity through Christendom in a form that would strongly commend itself to the foremost minds at home and abroad.

Such a man was Henry Barnard, of Connecticut, the great colaborer and complement of Horace Mann. It was fitting that the two American colonies which had first established the people's common school, and held fast to it through the entire colonial period, should give to the country these two great men, representing the segments of the complete circle of the national education: the encyclopedic literary genius that set before the public a complete picture of the world's best educational teaching and doing, and the educational statesmanship that planted in the conservative soil of New England the reconstructed common school which has been adopted as the most precious heritage of that section to the building of the new Republic.

Henry Barnard was born in Hartford, Conn., January 24, 1811, in the home of his ancestors, still the home of his old age. At the time of this writing, 1898, his age is 87. From his entrance into Yale College at the age of 16, his life has been a period of almost incredible activity. During its first half century it was largely engrossed in educational superintendence and the supervision of institutions of learning of all grades. But as the years have gone on he has been more occupied in the prodigious labor of building up the great storehouse of educational material, which has been declared by the highest European authorities the most extensive and reliable literary contribution to general education ever made by one man. While it may not be claimed that his labors as an educational administrator have surpassed those of others, they have yet been of great importance.

But the especial claim of Henry Barnard to national renown has been the direction of his mind to the crowning work of his life—the editorship and often authorship of the great American Encyclopedia of Education, the 50 volumes of the American Journal of Education. While still, in some ways, the most reliable authority for what has been done in departments of educational activity abroad, the peculiar merit of this vast work is found in the keen and practical sense displayed by its compiler in the special manifestations of educational life from the earliest years in our own country. Nowhere else can be found such a number and variety of interesting monographs respecting the growth of the educational spirit and organization in the different States of the Union. While diverted from his early determination to write the history of education in our country, Mr. Barnard's collection of material is itself the most complete picture of the educational life of a nation in literature. And now, through the preparation of an analytical index published by the Bureau of Education, this great

measures which changed the entire character of the common school of his own State and set the copy for a work of revival and reconstruction in popular education which is even to-day only in its transition to what it may become. As a legislator his interest was at once attracted to the subjects of prison reform; the management of the asylum for the deaf, dumb, and blind, under the direction of Rev. T. H. Gallaudet; the rehabilitation of the Connecticut Historical Society, with the similar institutions grouped around the central interest of education.

In a previous review of the history of the common school in Connecticut we have told the story of the decline of popular education during the long generation following the establishment of the Government of the United States. Up to 1798 the common school of this State appears to have been the most effective in the country. The original colonial system of dependence on the town for the establishment, supervision, and partial support of the schools adopted and persisted in by Massachusetts had been eminently successful in Connecticut. But about this time the State established the first considerable school fund in the new Union—$1,000,000—which thirty years later was increased by the addition of the United States deposit fund and good management to $2,000,000. Its annual income of more than $100,000 gave $1.25 to each child of school age. But in connection with this admirable foundation, the State made a new departure which proved one of the most disastrous experiments ever tried in the history of American education.

This was the transferal of the entire management of the common school from the town to the "school society." The "school society" was, in fact, only the Congregational Church, practically made the sole local authority in educational affairs. It consisted of all the members of a parish or religious "society," was not limited by town lines, and was entirely separated from ordinary town affairs as acted upon in town meeting. The school society had the power to receive the portion of the income of the general State school fund annually distributed, at first on the basis of the taxable valuation, but after 1823 according to the number of children of school age within its limits. It administered the schools by the action of all legal voters in special meetings called for that purpose. It was empowered to elect a board of visitors, who were authorized to examine candidates for teaching and to approve the election of teachers by the district authorities. It could impose a tax for building schoolhouses and could locate them. It could divide its domain into school districts, which were empowered to elect the local trustees, who selected teachers, subject to the approval of the society, and gradually assumed the general management of the schools. The board of visitors was required by law to visit and supervise all the schools in their own society, to fix the courses of study, and select the schoolbooks. The society was also authorized to establish a secondary or high school, when required, and to report to the State authorities concerning the status of education, the proper expenditure of funds, etc.

Here would seem to have been, on paper, a scheme amply sufficient to insure successful school-keeping, especially when backed by the annual distribution of more than $100,000 to a school population of some 80,000, with power to tax for schoolhouses, a local right of taxation and a practice of assessing a pecuniary school deficit on the patrons of the schools. But the fatal error of the scheme was the switching off the common school from a great public interest, to be dealt with like other matters of high public concern by the people in open town meeting, upon a sidetrack, where it was managed as an interest apart by peculiar methods.

Just how this peculiar system of public school affairs, known as the "school society," was manipulated, in the practical administration of popular education during the long generation between this new departure and the opening period of educational revival, 1830–1840, is still a question among authorities equally uncer-

ish colony to an American Commonwealth, when the introduction of manufactures and the consequent growth of large villages and cities made the sum of $1.25 per capita a year a miserable pittance even for the old-time rural district school, to say nothing of the free secondary education. Another point is evident—that the clerical and cultivated classes during these years were at odds with the public school, and gave their influence and money largely to the building up of a rival system of private and denominational education. Whether this class actually discredited the common school through its own administration, or "sulked in its tent" and left the "common folk" to manage affairs without experience in educational administration according to their own narrow ideas of public economy, is the point in dispute. But there is no dispute that between the church and the State stools the people's common school fell to the ground and lay there until, aroused by the shout of the great revival from 1830 to 1860 under the leadership of Henry Barnard and a group of admirable coworkers, it literally staggered upward to the improved condition in which it was found at the breaking out of the civil war.

In 1837 an investigation by a legislative committee showed that not one-half of the children and youth of school age, 4 to 16, were in regular attendance on the common schools, and that the schools themselves were in a condition satisfactory to nobody. Of the 1,200 schoolhouses, only 300 were pronounced suitable, and more than half practically unfit for occupation. Large numbers of them were in an almost incredible condition in sanitary arrangements, often an outrage to common decency. There was no regularity of school attendance; no real examination of teachers; a general neglect of all legal requirements for supervision, visiting schools, or arranging courses of study. Two hundred varieties of schoolbooks made "confusion worse confounded." The 1,200 teachers were a "dissolving view" of men in winter and women in summer, the men receiving $15 and the women $6 to $8 per month, besides very cheap board; the large majority of them "boarding round" in the families of the district to save the board bills. Not one-fourth of the teachers in any term continued beyond the year in charge of the same schools. There was no pretense of any attempt for the professional instruction of teachers, apart from such meager general education as they could gain in the common schools and an occasional term at the academy. Not a dozen common schools in the State were furnished with libraries and school apparatus. Not a district or society in the open country, where nine-tenths of the children were schooled, imposed a tax for supplementing the State fund, and not one made an annual report to the State. The duty of the commissioner of the State school fund seems to have been confined to sending to each school society its proper quota, of whose use there was little report. Indeed, there was no general knowledge, either public or private, of the condition of public education. The school society meetings for the choice of officers and transaction of business were sparingly attended and often acted without a quorum. The superior people of the community, more and more shirked the office of school visitor.

The whole situation was summed up in the repeated complaints of a general public apathy concerning the common school. The people who used it, or did not care to school their children anywhere, appeared to be satisfied, and supposed Connecticut, educationally, was still at the head of the country. It was almost impossible for the legislative committees to obtain information, the school societies often refusing to report their own inefficiency. In short, from the foremost in colonial days Connecticut had fallen nearly to the rear among the States that had in good faith established the common school.

Meanwhile the people of wealth, social influence, and superior education were more and more estranged from this apology for a common-school system. Every community of a hundred people had a private school. Yale College was still among the half dozen leading colleges of the land, under the direction of eminent

And the man was already there in young Henry Barnard. By common consent the flower of the best culture of his State and time, to whom all men were looking, he added to his numerous talents and accomplishments that spirit of consecration which is the one essential characteristic of the genuine reformer. He had already put on record the inspiring declaration, "So far back as I have any recollection, the cause of true education—of the complete education of every human being without regard to the accidents of birth or fortune—seemed most worthy of the consecration of all my powers, and, if need be, of any sacrifice of time, money, and labor which I might be called upon to make in its behalf." At the close of his remarkable speech, which, without further debate, carried the legislature almost as a unit in the support of the school law of 1838, he said, "Here, in America, at last no man can live for himself alone. Individual happiness is here bound up with the greatest good of the greatest number. Every man must at once make himself as good and as influential as he can and help, at the same time, to make everybody about him and all whom he can reach better and happier. The common school should no longer be regarded as common because it is cheap, inferior, and attended only by the poor and those who are indifferent to the education of the children, but common as the light and the air, because its blessings are open to all and enjoyed by all. That day will come. For me, I mean to enjoy the satisfaction of the labor, let who will enter into the harvest."

It is easy to be seen that the problem set for the young educational reformer of Connecticut was essentially different from that which confronted Horace Mann in Massachusetts a year before. For the common school of Massachusetts, although under a cloud of neglect, had never been derailed from the "through track" of direct public control. Every town and city had complete oversight of its own system of public instruction. It is true that the direct influence of the town and city had been greatly weakened by the extreme subdivision of these communities into school districts and the growing habit of leaving too much power in the hands of the prudential committee of the local school. But the town still elected a school committee, which was responsible for the general welfare of the schools and the examination of teachers; and, above all, the habit of direct local taxation for the free education of all had been established and never lost. Besides, the leading minds and the clergy in Massachusetts were more in sympathy with the common school than in Connecticut. It was easy for Secretary Mann to summon a group of men, distinguished in national affairs, to the hearty public support of his plans. Governor Edward Everett and Daniel Webster, Dr. William E. Channing, Dr. George Putnam and Rev. Caleb Stetson, John Quincy Adams, Governor George N. Briggs, and Robert Rantoul, jr., with the host of men of all professions highest in the esteem of the Commonwealth, cheerfully responded to the call to attend conventions, speak and write, and in all possible ways stand up for reform in the common school.

There was also a group of educational men, teachers and laymen like George B Emerson, Carter, Brooks, Sam. J. May, Cyrus Pierce, and President Humphreys, connected with academical schools and colleges, who cooperated heartily with the great educational statesman, toiling sixteen hours a day in the little Tremont street office of the secretary of the board of education. The chief work to be done was to wake up the masses of intelligent people, nowhere so eager to listen and ready to respond to the call to "go up higher" as in the Old Bay State, and through the cooperation of a friendly legislature to drive the chariot of educational reform with a free hand. And there was then, as now, in Boston and other cities of the State a body of generous-minded people of wealth ready to back any wise effort in behalf of philanthropy, education, or religion.

But the radical difficulty in Connecticut was that, for a long generation, the educational train had been switched off from the direct track of a public interest dealt with in the forum of the town meeting to the side track of a "school society."

Under these circumstances it was not strange that while Henry Barnard did find a strong support and high appreciation from many of the leading men of the State, like Governor Ellesworth, Dr. Horace Bushnell, and, later, Noah Porter, afterwards president of Yale College, yet the educated and superior class was not prepared to look with favor on his radical plans for the complete reconstruction of popular education. The stolid apathy among the masses of the people who still relied on the common school for their own children was not at once to be broken by the appeals and efforts of a scholarly, catholic, amiable young official, hitherto known only as a promising college graduate fresh from his foreign travels and ambitious of distinction as a public-school reformer. Indeed, it would have then been a hopeless undertaking to attempt to break up the school society, the radical weakness of the system. Dr. Barnard did not attempt this and, through the four years of his first term as secretary of the State board of school commissioners, seems to have studiously avoided that, the central point of attack.

His work was to visit the people in as many of the 140 towns as was possible; to inspect the schools; to become acquainted with the influential friends of popular education; to make numerous addresses; to awaken the attention of school visitors and teachers by a veritable shower of elaborate circulars of inquiry and suggestion, in themselves a valuable treatise on the new education; to write the series of educational reports that are still among the most reliable literature of the common school, and in the new Connecticut School Journal to begin the vast work of the gathering and publication of material for the teachers, the educational public, and the historian which we find complete in his great educational library, the American Journal of Education.

In general terms it may be said that the most reliable results of his administration were, first, the unmasking of the situation by the waking up of the latent hostility against the common school to an open declaration of war. This manifestation came to a head in 1842 in the report of a legislative committee which led to a reversal of the policy of 1838. This action first opened the eyes of the educated, influential, and patriotic people of the old State to the peril of their Commonwealth. Second, from this awakening there came up a genuine "common-school public," which, although not prepared to follow Mr. Barnard's suggestion on retiring from office of combining in a "Connecticut institute of instruction," did, at last, find itself, and eight years later recalled the defeated secretary and placed him again at the head of a system of public schools which has gradually outgrown its old defects and to-day is among the most effective in the Republic.

From the first there appears in Mr. Barnard a strong disinclination to occupy the public positions of great administrative responsibilities into which he was repeatedly thrust, though always somewhat under protest. He favored the appointment of Rev. T. H. Gallaudet, then at the head of the institution in Connecticut for the education of the deaf, dumb, and blind, as secretary of the State board of commissioners, believing him the most competent educator in the country. He even proposed to contribute money and influence to raise a fit salary for the office. Failing in this, he only consented to occupy the post of secretary for six months, without salary, and twice before 1842 urged his own resignation upon the unwilling board. His service during this entire term of office was pecuniarily as well as spiritually "a labor of love." He contributed to the cause as much as he received from the State. Indeed, he finally impoverished himself by his persistent contributions of money to the cause of education, largely by the publication of his great journal; never a popular magazine, for the same reason that an elaborate encyclopedia can not be made a popular periodical.

But the fact that his first appearance as one of the youngest members of the general assembly in 1837 and the manner in which he swept the entire legislature to the passage of the reformed school law of 1838, which, under the modest title "An act to provide for the better supervision of common schools," was in reality

"the commencement of a new era in the history of popular education of Connecticut," proves that there was a widespread sentiment against this policy of educational neglect and that a great expectation was awakened by the appearance of the fit man to lead in the policy of reform. The law passed the legislature almost unanimously after the one speech in the house of representatives by its author. From that remarkable speech can be gathered the entire programme of educational reform inaugurated by the great revival whose history we now rehearse. Dr. Barnard did not hesitate to lay his finger on the most sensitive spot in the controversy when he made "a forcible presentation of the needs of superior teaching, showing how the colleges and seminaries had made no preparation for it."

The law as passed, like the previous statute in Massachusetts, established a State board of "commissioners of common schools," consisting of the governor, the commissioner of the State school fund, and eight gentlemen representing the eight counties of the State. It is significant that President Wilbur Fisk, of the Wesleyan University, was one of the commissioners, while Yale does not seem to have been thus recognized. In Governor Ellesworth and Hon. Seth P. Beers, commissioner of the State school fund, the new secretary especially found a wise and persistent support.

The law provided that the duties of the board of school commissioners should be: (1) To ascertain the actual condition of the common schools of the State; (2) to keep the legislature informed of their condition by abstracts and reports, and to suggest plans for the improved organization and administration of popular education; (3) to visit the different counties of the State, through its secretary address the people, inspect the schools, and generally stir up the teachers, visitors, and other officials; (4) to edit a journal of education devoted especially to the cause of the common school.

The whole duty of the board may be summed up in the comprehensive title: A ministry of education in behalf of the people's common school, under the direction of the State. Like the Massachusetts State board of education, it had of itself no authority to do anything decisive in the change of existing affairs. But in New England this type of commission is always the most powerful lever for the uplift of any good public institution, as proved by the experience of the past sixty years. The way for the passage of the law had been prepared by such a partial report of the status of the common schools as could be obtained from an investigation by the committee of the legislature in 1837. Dr. Barnard, before the assembling of the legislature, had addressed a printed circular to every member of the general assembly, calling attention to the revelations of this report and urging prompt action.

The first act of Dr. Barnard after the organization of the State board was the publication of an elaborate address to the people of the State, the work of the secretary himself. With the true New England official habit, he hastens to disabuse the public mind of the idea that the board has any disposition or power to exercise authority upon anybody. It is simply a convenient arrangement to inform the people of the actual condition of their school affairs. "No inquiry of this sort has, as yet, been thoroughly and satisfactorily made. There has been no effective instrumentality for making it. The investigations, at numerous times attempted, have been very incomplete." Dr. Barnard goes on with admirable tact to appeal to the hereditary pride of the State in its educational affairs, to pay a well-deserved tribute to its fame in colonial days, and to suggest that, of late, while many Commonwealths and nations at home and abroad are waking up to a new interest in the education of the whole people, Connecticut must not be left behind.

In this respect the educational policy of New England has always been somewhat in contrast with that of New York. The Empire State, from the first, has relied greatly in education as in politics on the power of eminent leaders in commanding public station. The original creation of a "board of regents of the University of New York," which practically took all education for its province,

implied an authority far more extensive than it has ever been able to use. Later, the State established the office of State superintendency of common schools in 1820. The transfer of this office to the secretaryship of state brought to the service of the schools many of the ablest public men. Later yet, the scheme of supervision was carried out in the appointment of city and county superintendents with unusual powers. But experience seems to have testified that the New England idea of educating the whole people into their duty of instructing the children by vigorous direct local taxation for a local control of the common schools has been most effective. Still, New York has given the country a lesson so attractive in its idea of a concentrated State control of education that Mann and Barnard were moved to laudation of the State as the most progressive in the world in its public policy concerning the schooling of the people.

This circular was followed in July, 1839, by the first report to the legislature from the State board. It was the first thorough, elaborate, and reliable unveiling of the actual condition of public-school affairs to which the people of Connecticut had been treated "within the memory of the oldest inhabitant." Chancellor Kent, of New York, in his Commentaries of American Law, says of it: "It is a bold and startling document, founded on the most painstaking and critical inquiry, and contains a minute, accurate, comprehensive, and instructive exhibition of the practical condition and operations of the common-school system of education." It was not a brilliant discussion of educational theories, although, with the most unsparing criticism of present conditions and methods, the author puts forward the remedy in what amounts to a complete scheme of reformed public instruction founded on the most advanced ideals. Neither was it a public document made up at an official desk from reports, more or less accurate, by irresponsible officials. During the first year of his administration the secretary had literally "stumped" the State. Its extent and population, not exceeding 300,000, with 141 towns, was favorable to the system of minute local visitation, which Secretary Northrope afterwards carried to an almost ideal perfection. Secretary Barnard reports that he had "attended school conventions in all the 8 counties, addressed 60 public meetings, inspected more than 200 schools, consulted with two-thirds of the teachers of the State, and superintended the publication of the new Connecticut School Journal, more than 60,000 copies of which had been circulated during the year."

From the best information it had been learned that of 67,000 children and youth between 4 and 16 only 54,000 had looked in at the door of the common-school house, with only 42,000 in regular attendance; that 12,000 children (of the better-off class) in private schools and academies were costing their families $200,000 more than the entire sum expended on the remaining 55,000, and that at least 8,000 were in no school whatever. But one school society had made a report through its school visitors to the State before 1838. It was exceedingly difficult to obtain accurate information concerning the schools. The public meetings of the school societies were thinly attended and officers frequently elected when no quorum was present. The length of the school term depended on the salary of the teacher. The teachers were rarely examined with any degree of thoroughness, the schools were not supervised, and matters were conducted with constant disregard of the school laws. The schools were often suspended in winter for lack of fuel, which the people were expected to supply in lieu of a rate bill. It was difficult to point at a single model schoolhouse in the State. There was no uniformity of school-books, and primary instruction was greatly neglected in the multiplicity of studies. There was no attempt at the efficient grading of schools, the children of all ages being placed under the charge of one teacher, whose life was liierally a race through a series of brief lessons from day to day. There was no considerable class of trained teachers, and apparently little sense of the need of professional training for the teacher by the secondary and collegiate seminaries.

The irregularity of attendance and constant change of teachers amounted to a

practical waste of the school money. No country and but few city districts supplemented the regulation appropriation of the State fund, $1.25 per capita, by a local tax. The frequent deficit was assessed on the patrons of the schools, often making it as expensive to educate a child in the public as in a private school. The extreme division of the school society into districts and the neglect of the visitors to attend to their duty of supervision left the common school of many little hamlets, as of many city wards, in almost as complete isolation as if located in a dark closet, in no elbow touch with a neighboring school. All the difficulties of the school society were summed up in the existence of a public apathy concerning public-school education, which made attempts at reform almost hopeless. Indeed, this public apathy somewhat accounts for the unanimity of the legislature in passing the laws under the lead of Secretary Barnard. The legislature did not know the people, and it was four years before the people, who were apparently satisfied with this condition of affairs, were sufficiently waked up to inaugurate a reaction which "swept from the statute books in one month all the measures of the State for improvement."

There was no lack of suggestions for the cure of this great infirmity of the Commonwealth. Secretary Barnard's reports for the remaining three years of his administration abound with practical directions for better schoolhouses, uniformity of schoolbooks, the enforcement of their official duty on the school visitors, the just and equal distribution of school money, the necessity of local taxation, the proper grading of schools, with the establishment of free seminaries for secondary instruction. Great stress was laid on the reformation of the present corps of teachers, literally a "dissolving view" of young men working at $15 and women at $6 to $8 per month, "boarding round," flitting "from pillar to post,' often with the best intentions ignorant of the first principles of instruction and wedded to the old hateful style of severe discipline. In the Connecticut Journal of Education, established, edited, and practically supported by the secretary, he published a vast amount of valuable material about the conditions of popular education at home and abroad, in addition to several valuable treatises on instruction, with ample suggestions on all departments of school keeping.

It is unnecessary to follow the indefatigable young reform secretary through the almost incredible labors of the four years of this administration. His entire days and most of his nights were given to his work. As far as present effect on the public mind is considered, it is probable that the literary side of the work was overdone. No people on earth in such a state of educational opinions and practice as the people of Connecticut appear in these tremendous reports would long endure the humiliation of being published abroad through all the world after the style of this terrible "young man among them taking notes." Much of the literature thus launched upon the State during this period in the form of reports, articles in the journals, circulars, and voluminous educational inquiries by the secretary would be lost upon the average teacher. Indeed, these elaborate circulars of questions addressed to the boards of visitors and teachers were enough to "scare the wits out of" their astonished recipients; a sort of judgment-day summons to a style of professional thinking and activity for which they were absolutely incompetent.

The secretary did prevail on the legislature to pass several acts in the direction of reform, and, in 1841, a general codification and revision of the school laws was made. Several towns and cities were aroused to vigorous action; Farmington, Middletown, and Salisbury among the foremost. Dr. Horace Bushnell, of Hartford, himself a host, came to the rescue in a tremendous onslaught upon the condition of the common schools in the chief capital city. But the radical difficulty, the school society organization, could not be reached. The best system of improved pedagogics would fail of effect under such incompetent administration.

To the outside world the State of Connecticut now seemed embarked on a grand

voyage of educational reform. Henry Barnard at once shot up into a national reputation, and was largely quoted abroad. His reports passed rapidly into the realm of educational literature, in many respects the best in the country. Deficient in the great administrative power of Horace Mann; not always accurate in his knowledge of men and reading of public opinion; not, indeed, a politician, but a splendid scholar and an earnest advocate of the best theories of education before the whole country, he was doomed to the supreme disappointment and mortification of seeing his entire educational fabric demolished on the advent of an opposition party to power in 1842. It is doubtful if the administration of Governor Cleveland rightly interpreted the will of the people in this complete overturn of the work of the past four years. But so it was to be. In 1842 Henry Barnard found himself politically "out in the cold" in his own State. The entire code of school legislation with which his name and fame were associated was repealed. His work was generally disparaged and discredited, and the old Commonwealth seemed on the point of returning to "the fleshpots of Egypt" for another generation.

But no effort so consecrated, so forcible, so far-seeing in theory and practical in its application to present needs goes for naught anywhere, especially in a community so accessible to high ideals and good works as the people to whose interest this great apostle of education had devoted his life. Apart from the impulse given to many separate schools and to individuals in full or partial sympathy with his labors, Secretary Barnard had, for the first time in half a century, gathered together a common-school public which ever after could be relied on to further any reform of which a Commonwealth so conservative and cautious is capable. His proposition, at the close of his term of office, to unite this group of people in a general voluntary organization—"The Connecticut Institute of Instruction"—was a failure. But the common-school public of Connecticut was growing in a natural and decisive way. The foremost member of the party responsible for the reactionary legislation now revolted and made common cause with the friends of popular education of every sect, class, and condition. Their first effort was to check the present downward tendency; the second, to gather up the remains of Secretary Barnard's administration into a working policy that should effect his recall to power and set the common school forever on its upward way.

In 1844, two years after the reaction, Governor Baldwin again called attention to the unsatisfactory condition of the common schools of the State, and spoke in high appreciation of the labors of Secretary Barnard whereby "a new impulse had been given to the cause of education." The legislature responded by authorizing the governor to appoint a committee of nine persons for a new investigation, with an appropriation for necessary expenses.

This committee made an elaborate report, probably written by Commissioner Beers, of the State school fund. It opened with a hearty indorsement of the work of Henry Barnard and the State board of commissioners from 1837 to 1842, when "operations were begun which promised to carry our State forward in the cause of popular education—and whose effects are still visible in many places—although the result of this great effort has filled many of the friends of education with despair." The supervision of the schools had already fallen away from what had been achieved in 1842. All the old deficiencies were still present, even that invariable evidence of a low state of public interest in the schools—"the absence of decent outbuildings to the schoolhouse." The general want of interest in the educational training of the children "seems to be the crowning defect, or rather the foundation, of all the evils connected with the schools." The secret of the mischief is distinctly located in the school society. Only 59 of 214 of them had made any return to the questioning of the legislative committee. The report concludes with the statement: "No great change in the system can be introduced at present with fair prospect of success. One fatal deficiency seems to be that the

schools are in politics, and the machinery of one party seems to have been captured by the reactionists, or it may have fairly represented the numerical majority of the people."

But the committee did not leave their task without the suggestion of a policy that effectually "blocked the wheels" of the educational chariot, arresting it at its present downhill route. Two practical measures were suggested. First, that a permanent State official should be given such duties of the former secretary of the board of commissioners as he might be able to perform. Second, that every board of visitors of a school society should be required to elect a chairman, who should be held responsible for the performance of the legal duties of the body. Third, the establishment of a State normal school for the professional instruction of teachers.

These recommendations were adopted, and by the act of 1845 the commissioner of the State school fund was made the virtual superintendent of common schools, with duties similar to those of the late secretary, with the exception of the editorship of a State journal of education. It was the great good fortune of the State at this critical period to have another firm and able official friend of the common schools in Hon. Seth P. Beers, then commissioner of the State school fund. The Commonwealth always had reason to be proud of the admirable administration of its generous school fund under Commissioner Hillhouse and his successor, who now became exofficio superintendent of public instruction. His first report, in 1846, is a modest official summary of the real situation and a moderate suggestion of the virtual reestablishment of the discarded system of 1837–1842.

But the emphasis of the document was wisely concentrated upon a skillful massing of such reports from the school visitors as told on the chief defects of the present system and the publication of an admirable prize essay by Rev. Noah Porter, afterwards president of Yale University, but then pastor of a church in Springfield, Mass. The statistics of school attendance and all matters connected with popular education differ but little from those so thoroughly set forth by Henry Barnard eight years before. In 1845 not a town or school society in the State raised a tax for school purposes by voluntary taxation. In a few cities some $9,000, 10 cents for each child, had been thus collected. In contrast with this record the shrewd commissioner sets forth the progress of the common school in Massachusetts, New York, Michigan, and the neighboring Rhode Island, where Henry Barnard had been called and was now "in the full tide of successful experiment" as superintendent of the new common schools of the little State. In Connecticut "an apathy prevails like an atmosphere of death. People coming from other States to Connecticut feel like coming from the sunshine into a cellar." All the usual agencies of reform agitation were invoked for the awakening of the people.

The call was not unheeded. There was now in Connecticut a growing common-school public, the early fruitage of the seed so bountifully scattered by Henry Barnard and the original board of common-school commissioners, which responded to the appeal in behalf of the children. In 1846 a convention of 250 teachers and friends of the schools was held in Hartford, through four days, organized by Rev. Merrill Richardson, of Plymouth. The following report of Superintendent Beers speaks out with even clearer emphasis demanding a State board of education, the abolition of the school societies, and the resumption of the responsibility for the schools by the towns. It is also suggested that instead of resuming the publication of the State School Journal, the leading newspapers of the State should be utilized and perhaps subsidized for the coming campaign of education; a suggestion so wise that it is strange it has not to a greater extent become the policy of every State. The people are reminded that while the initiation of several of the most valuable reforms in common-school affairs dates from Connecticut, Rev. T. H. Gallaudet, in 1825, having published a valuable pamphlet on normal schools, the school-teachers' institute having been established first in Hartford in

Providence, Newport, and two other settlements. In Providence and Newport and a few smaller towns arrangements for educational facilities were made at an early date, which for many years satisfied the more influential classes, private schools of different sorts and the beginnings of Brown University.

In 1799 the Mechanics' Association of Providence made a vigorous demonstration in behalf of a system of public instruction for the State. Previous to this a movement, inaugurated under the lead of President Manning, of Brown University, for a public school system for the city of Providence, had failed of public indorsement, chiefly because it proposed to subsidize the parochial school of the Friends. Under the energetic influence of Howland, with the cooperation of many of the most wealthy and distinguished people of the city, the legislature in 1799 was persuaded to enact a school law which for the time was perhaps the most enlightened of any in the Union. But it was weighted with two fatal defects, local option and the lack of a reliable superintending State official. Only the city of Providence availed itself of its provisions and founded the system of public schools that has gone on without a serious drawback to the present day. But in 1803 this statute was repealed by the votes of the remainder of the State. Henry Barnard declared that "had this original law been accepted through the State as in Providence, Rhode Island would have had the best school system in New England. Even had there been in the statute a provision by which a competent public official could have explained its provisions to the people, it probably would not have been repealed." It was certainly free from the powerful ecclesiastical influence which indirectly in Massachusetts and more directly in Connecticut prevailed until well into the century.

No further successful effort for popular education was made till 1827–28, when, as the result of an agitation through several years, a school law was finally passed which was practically the basis of the present system of public instruction in Rhode Island. This act provided that the State should appropriate $10,000 annually from the avails of certain taxes and receipts divided among all the towns in proportion to their school population. It also conferred a limited authority on the towns to tax for the cost of instruction. But it left the power to build schoolhouses and school supplies so indefinite that during the next dozen years the statute book was burdened with supplementary amendments, and special legislation was required even to enable a school district to build a schoolhouse. In 1836 the State set aside the United States deposit fund of more than $300,000 for the use of the public schools and afterwards provided for the establishment of district school libraries, and in 1839 legislated to protect children under 12 years of age working in the manufactories by securing to them three months of schooling a year.

But the fatal lack of a central supervising authority left educational affairs still at loose ends. Every little town or school district assumed the prerogatives of a free and independent republic as far as concerned its arrangement for the education of the children. Nobody knew the actual condition of the schools, although the State had then but little more than 100,000 population and some 35,000 children of school age. But in 1843 the public dissatisfaction at this condition of affairs culminated. Governor James Fenner had already declared himself a friend of educational reform, and emphasized his declaration by giving to the schools of his own city, Newport, the sum usually appropriated for the celebration of governor's inauguration day. Strong petitions came up to the legislature. Mr. Wilkins Updike, an influential member, prepared a short bill designed to furnish the one thing needful to set in motion the present cumbrous educational machinery. In a powerful speech supporting the bill, he declared that "outside of Providence and a few towns, the public school system was not a blessing to the State." This speech takes high rank in the educational literature of the Commonwealth.

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He freely exposed the unsatisfactory condition of the schools and deplored the fact that Rhode Island, a Commonwealth pledged by its entire history to magnify the personal liberty of the citizen, should be so unmindful of the fundamental personal right of the child to the educational training that makes for good citizenship. Rhode Island was then the seventh Commonwealth in the Union in the scale of intelligence, 1 in 6 adult persons of its population of 108,830 being absolutely illiterate, and the school facilities offered to the children in all respects open to the gravest objections. The best proof that Mr. Updike voiced the prevailing opinion of the progressive school public was the passage of this bill and the invitation to Henry Barnard, just then without official duty by the repeal of the school law of Connecticut of 1842, to visit the State, address the legislature, and generally advise concerning the proper enforcement of the statute.

Dr. Barnard seems never to have been a man even of "literary leisure" during his long life of more than 80 years, four of which have been consecrated to the work of popular education. On the downfall of the system of schools in Connecticut, which he had practically helped organized and administered from 1837 to 1842, he had immediately resumed his travels through the United States, with the especial intention of collecting the materials for a history of the American common school. He was everywhere found carefully observing and wisely suggesting, and everywhere welcomed by the most discerning and influential friends of education. His strong leaning to the literary side of the great revival of the common school had already been manifested in his establishment of the Connecticut Journal of Education, which he had made a storehouse of valuable information. But the governor of Rhode Island spoke the right word when he advised Mr. Barnard "that it was better to make history than to write it." And nowhere in the history of popular education in the United States is there a more conspicuous example of making a new chapter in the history of education than in the labors through five crowded years of Henry Barnard, who accepted and held the office of the first State commissioner of education for Rhode Island from 1843 to 1849.

The Rhode Island school law of 1843 was mainly a provision for a State superintendency of common schools. The first section requires the governor to "appoint an agent," whose salary shall be fixed by the legislature. The remaining clause was a declaration of his duties as usually defined in the few States that had already established the office. Mr. Barnard was appointed commissioner and assumed the duties of the position September 1, 1843.

The immediate duty of the commissioner here, as in Connecticut, was to learn the actual condition of educational affairs. For two very busy years Commissioner Barnard worked at this point in his own characteristic, persistent, and minute style, represented by the daguerreotype, which, according to Hawthorne, most completely reveals the inner life of the subject. Certainly this inspection left on the mind of Mr. Barnard a complete picture of the educational state of Rhode Island, with a thorough insight into the cause of the present state of affairs. In this work of investigation he was favored by the fact that the school commissioner of Rhode Island had in certain ways a larger power than had been conferred by Massachusetts or Connecticut—the appointment of boards of county officials for the examination of teachers and the inspection of the schools.

From 1843 to 1845, when Commissioner Barnard's first written report appeared, he visited every town in the State, and in many cases repeated the visit, inspected 200 schools, and put himself in personal connection with 400 teachers, besides a habit of constant intercourse with parents, friends of education, and even children and youth. One thousand circulars of the elaborate sort that made each a valuable treatise on education had been sent to the teachers and school officials. He was now prepared to tell the people of Rhode Island the facts of the situation in his own peculiar style, in which the most unwelcome truths are pressed home with the irresistible force of a skillful surgeon manipulating a dangerous wound, in a

spirit so appreciative and friendly that his entire career seems to have been free from the fierce personal collisions and violent controversies which finally wore out the life of his illustrious friend and colaborer, Horace Mann.

But the bald facts of the case were sufficient to wake the most apathetic people to a sense of impending peril and were in themselves a loud call for reform. The school legislation of the State had become a bewildering maze, the original law of 1828 having been so built upon and modified, with so much left to special enactment, that the system was almost unworkable. More than fifty supplementary acts had placed the original statute like a house located in the center of an everglade through which only an expert guide could find the way. The law was a fair transcript of the state of public opinion in the little Commonwealth. Everywhere private and personal opinion, masking under a lofty assertion of "independence," "had full course to run and be glorified." The original Providence compact to obey the government of the majority "only in things civil" had been perverted so that education by the State was supposed to violate the religious liberty of the parent; a curious illustration of the way in which the narrowest religious sectarianism may fraternize with the most radical assertion of civil and religious liberty; as the deadly rattlesnake and the harmless gopher of the Western prairies burrow in the same hole. So violent was this prejudice that respectable members of the legislature declared that the attempt to tax a community for public schools "would be resisted at the point of the bayonet."

The evil of local division into little school districts had practically made good school keeping in the open country an impossibility. The State was swarmed upon by discarded teachers from abroad, and there was no attempt at professional training at home. The neglect of the examination of teachers, school visitation, and supervision was even an exaggerated copy of what the commissioner had encountered in Connecticut. The variety of schoolbooks on every topic was numbered by the hundred, and there was great neglect by many parents to furnish the children with books at all. In 1844 but three towns had imposed a tax for schools. In 1845, outside of Providence and a few smaller towns, there was not three months a year of school. One in every forty of the adult people of the State could not read or write. Mr. Barnard found only twelve female teachers in the State outside of Providence and a few towns. He asserted that two-thirds of the children could be taught better by women, and their employment at regulation wages would add two months to the winter school term.

The condition of the schoolhouses was such as, by contrast, to make the present status of school accommodations "palatial." In 1843-44 only 312 houses were provided for 405 schools, 147 of them being owned by "proprietors"—virtually private property. Of 280 examined, 25 "were in good repair," 62 "in ordinary repair," 86 "absolutely unfit for occupation," 180 "on a line with a public road," 29 only with a playground, 200 had an interior height of only 8 feet, with no means of ventilation; the seats were generally arranged around three sides of the room, with no backs, and 14 to 18 inches above the floor; "270 had no clock, blackboard, or thermometer, and only 5 possessed a scraper or mat for the feet."

In 1844 there were probably 35,000 children between the ages of 4 and 16 in the State; 24,000 were in all the schools—21,000 in public and 3,000 in private; only 13,500 in regular attendance. Only 5,000 attended during the whole school year, 6,000 not over three months. The school boys outnumbered the girls, above 16 five, and above 10 years of age, four to one. Six thousand children had no regular schooling. Mr. Barnard declared that four-fifths of the private schools would disappear if the public schools could be improved. Only 2,000 of the 35,000 children received nine months schooling in the year.

In short, all the defects with which Mr. Barnard had struggled during his five years administration in Connecticut were found in an exaggerated state in Rhode Island. But the small area of territory, the concentration of population in a few

centers, the entire population of the State being less than the city of Providence to-day, and the whole number of children not exceeding that of a city of 200,000 people, were favorable circumstances. Some of the most serious obstructions in Connecticut did not there exist. In Mr. John Kingsbury, principal of the famous Academy for Girls, in Providence, the commissioner found an able and indefatigable assistant. In 1845 the Rhode Island Institute of Instruction was formed, which became a powerful agency for missionary work. For several years it maintained an "itinerating agency" in the person of Mr. Baker, which amounted almost to a house-to-house visitation. The journal of the institute, edited and largely supported by Mr. Barnard, became the medium of publication for his reports and information concerning public education at home and abroad.

In 1844 the legislature intrusted to Commissioner Barnard the preparation of a new school statute. The work included the codifying and rearranging the school legislation of the State. This law, after two years, was adopted, and by 1848 the school-ship was in full sail toward the haven of success. One valuable service to the people was an elaborate explanation of the new law, prepared by Mr. Barnard, published with it, and sent to every school district. In this law and commentary the defects of the schools received attention, and as far as possible were remedied.

The result was that when Mr. Barnard was compelled, in 1849, to retire from his office by failing health, he could honestly report that Rhode Island possessed one of the best systems of public education in the Union. One hundred and twenty thousand dollars outside of Providence had been expended in building or repairing schoolhouses, and the commissioner's valuable treatise on school architecture was in the hands of every school committee. Every town in the State raised a tax to supplement the State fund, and the local levy amounted to $1 per capita. More than 1,100 meetings had been held and 1,500 addresses delivered, beside a perpetual discussion of educational topics.

A large convention of school officials and eminent teachers had met, after nine months' experience of the new law, to discuss its merits and suggest amendments; 200 meetings of parents and teachers had been held; 16,000 educational pamphlets, each of 16 pages, had been gratuitously distributed, and 1,200 volumes bought by teachers for libraries. During one year every almanac published in Rhode Island had contained 16 additional pages on education, furnished by the commissioner. A school library of at least 500 volumes was found in 29 towns.

The improvement in school buildings was pronounced "a complete renovation, nay, a revolution," the State in 1849 having the best average of schoolhouses in New England. "Good teachers and improved school buildings had added 50 per cent to school attendance." One hundred primary schools with women teachers had been established, and the graded system was organized in all the principal towns. No schoolhouse was without a blackboard and one-third of them had globes and maps. The best people in the State were serving on school committees, and the new school law imposed a fine for the refusal to serve after election. The towns had been granted an unlimited power of local taxation, a minimum rate being fixed as a condition of receiving the State distribution. In 1847 only three towns in Rhode Island refused to vote a tax for schools. The entire expenditure for public education was $58,000, more than one-half the entire expenses of government for the State. The valuation of the State in 1844 was $59,000,000, the largest per capita in any State, $5.41; Massachusetts, $4.06; Connecticut, $3.25; New York, $2.49.

But there was still a great work to be done in Rhode Island. The conditions, even after the great results achieved by Mr. Barnard's administration of five years, were such as would not be regarded with a special favor in any State of the Union to-day. But the decisive battle had been fought and won. The people of Rhode Island had learned the great lesson of cooperation for the public good, and the reign of unbridled personal and private opinions and obstinate willfulness

masquerading as the spirit of freedom had closed. It was most remarkable. On the retirement in 1848 of the great commissioner, enforced by a collapse of health induced by his great exertions in behalf of the children of the State, the legislature unanimously enacted a vote of thanks, the teachers of the Commonwealth expressed their gratitude by a valuable present, and the portrait of Henry Barnard now hangs in an honorable place in one of the public buildings of Providence.

THE COMMON SCHOOL IN CONNECTICUT.

But while Mr. Barnard was thus occupied with the creation of the first common-school system of Rhode Island his heart was still in his own State and city. One of the most important of the many good works accomplished in these early years of his prolonged ministry of education was the great influence and aid he contributed to the protracted effort to establish the Free High School of the city of Hartford, Conn. In a remarkable letter to Principal Capron of this school, written in 1871, he gives an elaborate history of the campaign of education through which this celebrated school fought its way to its final establishment, becoming as great a power for the free secondary education in Connecticut and other States as Yale in the realm of the higher education. As an object lesson in the history of multitudes of similar institutions in all parts of the country, and an encouragement for the persistent and intelligent pushing of a great public cause, this letter could be republished and read to-day, especially in our Southern States, with great benefit. A brief sketch of this episode in the busy life of Dr. Barnard should not be left out of this narrative.

In the speech delivered by young Henry Barnard, as a member of the legislature of Connecticut in 1838, in support of his own bill for the reform of the depressed school system of the old Commonwealth, occurs a hearty tribute to the Boston Latin School, first and most celebrated of the class of free seminaries of the secondary type that came up in connection with the original common-school movement in the New England colonies. He tells the story, more striking then than to-day, that in this school a son of a President of the United States received the second prize, when the first honors were given to the son of the man who sawed the President's wood pile. Soon after his appointment to the office of secretary of the Connecticut State board of education, in an address before the Young Men's Institute, or Lyceum, of Hartford. Mr. Barnard urged the young men to labor for the development of the higher city life, including a reference to the unsatisfactory condition of the public schools of Hartford. This lecture in substance was repeated in several of the larger towns of the Commonwealth, and is said to have been very influential in the movement that resulted in the establishment of high schools, public libraries, and similar institutions in the State. Among other suggestions was one that has commended itself to many of our chief American cities and smaller towns—a voluntary association of mothers to look after the sanitary arrangements and moral training of school children. In this admirable address he outlines the present system of agencies for the general welfare of our larger American communities with a prophetic foresight. It is suggestive of the state of public opinion in New England half a century ago that, even as late as 1838, an educator so progressive as Henry Barnard should have been obliged to advocate the schooling of the free colored children of Connecticut in separate schools.

In 1842, on his retirement from the administration of the discarded system of education in Connecticut, Mr. Barnard prepared a document as an appendix to his final report urging the addition of the free high school to the present system. Although this was only a call for the restoration of a prominent feature of the original colonial common school, the free grammar school to be established in every town of 100 families, the legislature of Connecticut refused to pass it on the plea that it was inexpedient to support the secondary education by the State. At

this juncture Mr. James Wadsworth, of New York, a native of Connecticut, already known for his munificent and influential support of the district school library system in his adopted State, caused to be printed and circulated at his own expense 30,000 copies of Mr. Barnard's document, which was largely read and was very influential through the entire country.

Previous to this, in 1839, at an educational convention held at Hartford, presided over by Mr. Seth P. Beers and addressed by Prof. Calvin Stowe, Alexander Everett, and George B. Emerson, the subject of the grading of city and village schools was thoroughly discussed at several sessions, every city of the State being represented. Mr. Barnard there urged the establishment of union schools. Professor Stowe then asserted that the public schools of Cincinnati, Ohio, were among the best in the country. It was shown that five-sixths of the nonattendance on the common school was in the cities and larger towns, probably from the fact that these were the manufacturing centers of the State and the well-to-do families educated their children in private schools. It was suggested that private associations might well be formed to agitate for and, if necessary, to afford material aid to this enterprise. This was effectually done a few years later, at New Britain, Conn., in the establishment there of a State normal school. An association of this sort was formed at once at Hartford; at first of five members, two more than the attendance at the last annual meeting of the Central School Society of that city.

The agitation thus begun did not pause till six years later it resulted in the establishment of the Free High School for Hartford for boys and girls, with the old Hopkins School of the city included as its classical department. The long and obstinate conflict that terminated in this victory for the people was one of the most influential in the history of American education. The staid old capital of 10,000 people was shaken to its rock-ribbed foundations. Dr. Horace Bushnell, the splendid man of all work for Connecticut, as the foremost theologian of America, in 1842 contributed an important service in his scathing exposure of the condition of the public schools of the city, and his energetic appeal led to a reorganization of the central school society, out of which, in 1847, came the present high school. Before that time, in 1839, Mr. Barnard began the publication of his Connecticut Common School Journal, without a subscriber or a dollar of income, and supported it chiefly by his own money.

In 1842 the cause of popular education gained a new and powerful advocate in Mr. James N. Bunce, a gentleman of large wealth and public spirit in Hartford. He had attended an educational convention in 1845, where, before a meager audience, the most important matters had been ably discussed, and declared that "this should not happen again if he could help it." Another convention, more largely attended, was held in 1846. Mr. Bunce wrote to Henry Barnard, then in Rhode Island, to "come out of the wilderness and help your own brethren and State," promising his own personal cooperation and material aid. Mr. Barnard in reply suggested that he was just then too much occupied in "making the wilderness blossom as the rose" to accept the call. But he at once took the matter to heart, proposed a campaign of agitation, and for the five subsequent years was the soul of the movement.

At his suggestion Mr. Bunce offered a prize for an essay on popular education, which brought forth the remarkable paper by Rev. Noah Porter, afterwards president of Yale, which is still a classic in American educational literature. Mr. Barnard made a statement which the teachers and educators of the country would even to-day do wisely to heed: "I have never seen a gathering of parents of any class who could not be interested in the subject of schools and education if presented in a practical way, and especially in reference to their own children and schools." Thus through a five-years' campaign, not inferior in spirit and exciting incident to a great political election, the people of Hartford, as far as concerned

the voters of the central school society, were at last educated to the point that, after repeated meetings and months of public discussion, the vote was carried by an overwhelming majority for a free high school. Mr. Bunce contributed $1,000 toward the expense and pledged $5,000 toward a State normal school. Twelve thousand dollars was invested in the enterprise and the Hopkins grammar school fund provided for the classical department. A tax for 1¼ cents on the dollar was laid on the property of the members of the society for its maintenance. It at once became one of the best of this class of seminaries in the country. Mr. Barnard visited Hartford five times in connection with it, engineered the campaign, outlined the plans of the building, drew up the course of study, and was, in fact, almost omniscient in the good work.

On December, 1847, he was called to the grateful task of assisting at the dedication of the new high school at Hartford. In his address, which also covered every superior interest of the metropolitan life of the country, he made the remarkable declaration: "I say deliberately, for the whole country, that if the efforts which have been put forth here, and which the deep conviction of the same necessity has caused to be put forth in other States, fail to incorporate this high school feature into our system of common schools, that the higher education—everything beyond the merest rudiments, will pass into the inevitable keeping of religious bodies and adventure schools, over which the people can exercise no control, and parents can have no guaranty of the value of the education their children will receive. There can not be—there never has been—an efficient system of primary instruction, whose teachers and officers were not supplied from public institutions of a higher grade."

On this occasion Dr. Horace Bushnell also delivered one of those remarkable addresses which so often during his prolonged career set the most thoughtful people of the entire Republic thinking along new lines of observation. The occasion was one long to be remembered. It is not too much to say that the establishment of the Hartford free high school marked a new era in the development of public secondary education in the country. It was the most signal victory yet achieved in the conflict everywhere inaugurated between the people and the religious sects and more favored classes for the control of this important department of education. This school at once became a conspicuous center of the secondary education for the whole State, and thirty years later remained a great academy to which pupils were sent from all portions of the country.

Its establishment was also the stimulant to a similar movement in other cities of the Commonwealth. A few years later Dr. Barnard was called, as one of a distinguished group of college presidents, professors, and public men, to dedicate the free academy at Norwich, Conn., whose reputation has only been less than the Hartford High School, and whose outcome has been the elevation of this and many of the smaller New England cities to national reputation as centers of educational and philanthropic activity. Norwich is now everywhere known in connection with the schooling of the colored youth of the South in normal and industrial training, by the gift of the Slater fund of $1,000,000. Connecticut from that time, even beyond its previous reputation, became a great hive, sending forth every year new swarms of enthusiastic workers in the secondary and higher education, especially through the West and the South. The influence of Barnard, Capron, Gallaudet, Porter, Bunce, Bushnell, and Beers was felt at once even to the summit of the great mountain divide, and later through our new Pacific empire.

In his letter to Principal Capron, Mr. Barnard, in 1871, wrote this triumphant declaration: "I have seen every provision drafted by me, which was stricken out of the statute books of Connecticut in 1842, restored, and many more remembered by me not only placed in the school laws, but also become a part of the school habits of the people. And more than this, I have lived long enough to see nearly

all the condemned features of city and town organization advocated in Hartford from 1838 to 1842 and denounced as the 'impracticable schemes of an enthusiast' ingrafted into the constitutions of 15 States and the school systems of 35 States and upward of 100 cities of over 40,000 inhabitants and many more with a smaller population." What a supplement could this venerable apostle of the people's school write to this declaration now, twenty-five years later, when he beholds the majestic spectacle of our 16 Southern Commonwealths united in the support of every department of the people's common school, with a dozen new and powerful States and Territories beyond the great mountains and along the Pacific Coast, each in some good way surpassing its predecessors in the glorious work of training its children and youth for the coming citizenship of the new Republic.

But even in this letter to Principal Capron, Dr. Barnard notes the fact that Hartford, as late as 1871, still held with a firm grasp to the antiquated local district organization of the common school. Half the children in the city, according to his statement, were not then found in it. And later than this, the original system of separate district organization was persisted in after it had disappeared from almost every other city of similar importance in the Union. The educators of our new States, who rejoice in the organization and growth of their splendid systems of public instruction, can with difficulty realize through what a long and wearisome period of toil, conflict, and sacrifice the great apostles of the children and youth wrought through the generation of the common-school revival, from 1830 to the opening of the civil war, to save this, the nation's most precious heritage, for its future perpetuity and glory.

HENRY BARNARD AS STATE SUPERINTENDENT IN CONNECTICUT.

On the 1st of August, 1851, Henry Barnard was recalled to his former position, now fitly named superintendent of the common schools in Connecticut, and at once entered on the duties of a second term of four years. It will be unnecessary here to enlarge on the performance of the ordinary official labors of the new superintendent during this period. The actual condition of the public schools of the State was not greatly in advance of what has already been set forth in 1842; indeed, it is possible that in some localities they had suffered from the repeal of the law of 1838. But in several important conditions of success there had been a marked improvement. The spectacle of a great political party using the temporary disaffection of the people concerning popular education to elevate itself to power is always a warning to an American Commonwealth. In this case the warning seems to have punctuated a crisis in the common-school policy of Connecticut.

At once the friends of the educational revival and reform came together as a proper educational public, which, by 1844, made itself felt at the statehouse and in the administrative affairs of the Commonwealth. It can not be denied that the marvelous intellectual fertility of Henry Barnard, as the foremost American literary exponent of the great revival of popular education, was somewhat in the way of immediate practical results in reforming abuses and inaugurating radical changes in the schools. His successor, Mr. S. P. Beers, brought to his difficult position the rare executive ability which had characterized his administration of the State school fund, and, through his cautious and persistent handling of the legislature and wise direction of public opinion, one of the most essential features of Dr. Barnard's policy, the establishment of a State normal school, had been already brought to a happy conclusion.

The establishment of the first teachers' institute in Hartford, in 1839, during the administration of Secretary Barnard, was followed by a vigorous working of that important agency. Every year during the administration of Mr. Beers this popular movement had gained strength, until it secured the favor of the teaching body

and impressed the thoughtful class of the people with the idea of a permanent arrangement for normal instruction. For thirty years the more progressive leaders of public education in Connecticut had been laboring at this problem. In 1816 Mr. Denison Olmstead, then principal of the Union School at New London, had published an important pamphlet on "An academy for teachers" and reenforced its arguments in a striking address at Yale College. Prof. J. L. Kingsley, of Yale, in 1823, through a forcible article in the North American Review, had discussed the same proposition. Dr. William Russell, principal of the New Township Academy at New Haven, had given his influential name to the agitation. In 1825 Rev. T. H. Gallaudet, already with a national reputation as the leader of the important department of the education of the deaf and dumb in the United States, wrote a series of able articles on normal school instruction, which was republished and widely read. Dr. Barnard declares it the crowning service of Dr. Gallaudet to the cause of American education, that not only in his own specialty but in the general application to all schools he so ably and distinctly set forth the necessity of special professional training as a prime condition of success in the fundamental profession of instruction. We have seen that Dr. Barnard, in his notable legislative speech before the general assembly, which carried the original reform-school law of Connecticut in 1838, declared that a special provision for the training of teachers was a vital part of his proposed reform in the common schools of the State. He vigorously followed up this proposition in all his reports as secretary of the State board of education. In 1839 he carried a bill to appropriate $5,000 for the general work of training teachers, not necessarily for a State normal school, through the lower branch of the legislature, only to see it practically shelved by a committee of the senate. His repeated attempts to push the subject, in 1841, met the same fate. In 1842 the work was arrested and his office abolished by the repeal of the law of 1838.

But the good seed thus sown during a generation had fallen on good ground and sprung up. The teachers' institute was the form in which both the school men and the public now welcomed the movement. Many prominent educators from other States and men of large public reputation at home were brought before the great audiences that thronged these gatherings.

In 1844 a committee of eight was appointed to investigate the condition of the public schools. This committee, at the session of 1845, made a report including the recommendation for a State normal school. In 1846 (S. P. Beers, secretary) the legislative joint committee on education reported a bill appropriating $2,500 a year for four years to establish a training school for teachers, with a committee of eight, one from each county of the State, to locate and establish it. The proposition was warmly debated and the bill passed unanimously in the house, but was lost in the senate by one vote. But in 1848 the bill finally became a law. After a ten-years battering at the "knocker on the big front door" the "land of steady habits" admitted the State Normal School for teachers. The people of New Britain, a pleasant town a few miles from Hartford, at once formed an "educational fund association," with a capital of $25,000, in shares of $25, to locate the new normal school.

On June 4, 1851, the State of Connecticut joined the procession, third in the line, with Massachusetts and New York ahead, in dedicating the new normal school buildings at New Britain. The people of that town had erected school buildings at the expense of $16,000, and placed their own schools with several hundred pupils under the supervision of the normal as a school of observation and practice. Henry Barnard lately retired from his arduous and brilliant career of supervision in Rhode Island, was now brought back to his native State and city in the double office of "superintendent of public education" and "principal of the State Normal School." He accepted on the condition that a competent assistant should have the special charge of the normal school, and Rev. T. P. D. Stone, from

Massachusetts, was called, with the aid of Professor Guion and several assistant women teachers, to this post. Two of the early teachers of this first normal school in Connecticut, Dr. Philbrick and Mr. S. D. Camp, afterwards became the successors of Dr. Barnard in the State superintendency.

On a midsummer day, June 4, 1851, the governor, State officials, legislature, and a goodly show of the foremost citizens of the State, with an imposing military demonstration marched to the railroad station at Hartford and were received at New Britain with added ceremony by the enthusiastic people of the enterprising little New England town for a whole day's and evening's celebration of the opening of the State Normal School. In his address, Superintendent Barnard again took up the theme on which, for the past sixty years, he has told his "story without an end," of education as the glory of the Republic. After a mighty feast of Connecticut roast turkey, mince and apple pies, the great crowd surged back to "business" and listened for another hour and a half of a summer's night to one of the electric discourses of Dr. Horace Bushnell, for a generation the theological and spiritual dynamo of New England, on "Connecticut." The school had already been opened with 35 pupils, and 300 applied during the first year. For two years the State Normal was little more than a permanent normal institute, receiving teachers and pupils of all grades for even less than one term, with personal courses of study. Its sessions were adjusted to the convenience of the terms of the summer and winter district schools. But the organizers of the New State Normal with wise discretion had planted it amid the environment of a large practice school, containing the entire school population of a considerable town, officered by experienced teachers, and the observation and practice in a good graded school was of inestimable benefit, even to the crudest young schoolmaster who came up for three months to New Britain, as to an educational Mecca, for aid and comfort. But in the third year the legislature voted a permanent annual appropriation of $4,000, and a systematic course of instruction was set up at the center of the drifting crowd of students. In 1860 State Superintendent Camp reported gratifying progress. Already, in less than ten years, 1,500 teachers had come under the influence of the State Normal School from 130 towns, 500 of whom were then in service, at least one from every school society. Dr. Barnard was unable, from his arduous duties of State superintendency, to secure time for instruction in the school, or even do much for the institutes, although his fatherly eye was here as everywhere upon the children and youth of his beloved State.

Another most important service rendered to the Commonwealth by Superintendent Barnard was the drawing up of a revised code of school legislation, which included all the reforms he had originally advocated. After a sort of informal "referendum" to the teachers and people and a thorough discussion in the legislature it was enacted in 1849. It aimed, in general, at a consolidation and simplifying of the entire organization and administration of public school affairs. As far as was then possible it attempted to restore the management of the common school to the control of the towns, the reduction of the too numerous school officials, the more equitable distribution of the State school funds, the encouragement of local taxation and especially the inauguration of the graded system whereby the inevitable confusion of the oldtime district school of New England was brought into order by the classification of pupils according to their attainments, and the building up of the present scheme of instruction from the primary to the high school adopted.

Under the overloaded system then in operation, according to Superintendent Barnard, "each of 1,650 school districts was independent of all others and practically acknowledged but a loose dependence on either the school, society, or the State." Not less than 10,000 school officials, 2,000 of them, according to the same authority, absolutely incompetent, and the majority indifferent to or neglectful of their legal obligations, were muddling the education of 75,000 children. Here, as in Rhode

Island, was the real laboring oar of the educational craft, to break up the obstinate Puritan conceit of local independence in public affairs under which the most important concern of the State was practically falling into the hands of little rings of officeholders, even elected frequently by less than a quorum of the society meeting.

But another service was not less important to the general educational welfare of the State and nation—the preparation by Superintendent Barnard of "The History of the Legislation of Connecticut Respecting Common Schools up to 1838." In place of an ordinary report for 1854, the superintendent furnished a stout volume of 180 pages of closely printed matter, not merely a dry record of legislation, but an elaborate and eloquent history of popular education in the State that, up to a recent time, had been in several important respects the most complete object lesson of the American common school in the Republic. Along with this were printed several valuable supplements and a useful sketch of educational affairs in all the States which at this time had made any considerable progress in the common school—New England, New York, and Ohio. This document, with the reports of Horace Mann and Henry Barnard, was the real beginning of the educational literature of the common school in our country. It was followed by a long procession of similar documents, State and national, in all parts of the Union. Out of this has come a body of common school practical literature for the uses of a republican State more valuable than that of any other country or period, where all that has come to us from abroad has been considered and its adaptation to local and general needs for the training of good American citizenship retained. Out of it came up, in 1865, the National Bureau of Education, now in practical efficiency the undisputed head of similar departments of education. Along with this, Superintendent Barnard had published and contributed, somewhat from legislative grants, but to a great extent at his own expense, many thousand copies of important documents concerning education abroad, schoolhouse architecture and arrangement, normal schools, and improved methods of instruction which, often republished, had revealed him more and more to the whole country.

All this is but an inadequate view of the vast upland region of the twelve years of school administration and authorship which declared Henry Barnard the nation's man of all work in the cause of the children. As usual, in all similar undertakings, he was again prostrated by shattered health and retired from the position of superintendency in 1855. His successor, Dr. John C. Philbrick, was called from the principalship of the State normal school to the position. In the opening sentences of his first report, 1855, he speaks of his predecessor in these eloquent words: "I can not forget that I occupy the place that has been filled by one whose eminent abilities, wise counsels, and abundant labors in the cause of popular education have merited and secured the highest respect and confidence of the people of the State. He embarked in this enterprise of superintendence when there were few to encourage and aid and many to discourage and oppose. He had peculiar work to do. He had to encounter the jealousies of party, the prejudices of ignorance, and the hostility of a blind though honest conservatism, which could see nothing in his plans of improvement but destruction to the old landmarks of the fathers. In retiring he leaves a different state of things. He has enjoyed the satisfaction of witnessing these obstacles gradually melt away before the power of truth and the friends of progress constantly increase in number and power, until his long-cherished hope of seeing Connecticut regain her ancient place in the first rank of the educational States seems about to be realized and that blessed day is ushered in when every school in the State should be good enough for the best and cheap enough for the poorest."

But the old State of Connecticut still went on, in Yankee parlance, "at her own jog," through all this tempest of literary and executive activity for the better educa-

tion of the Commonwealth. In 1852, fourteen years after the revival of 1838, Superintendent Barnard reports the condition of public education as follows: There were 148 towns and 6 cities in 8 counties. Population of State, in round numbers, 375,000, with a property valuation of $170,305,000; 95,000 children of school age (4 to 16); 217 school societies; 1,652 districts; State school fund, $2,050,000, with an income of $133,000, $1.40 for each child; town deposit (United States) fund, $763,600, with income for use of schools, $30,000; society and local funds, $100,000, with $6,000 income; tax in these societies, $4,000, and in 17 districts, $10,000; income from rate bills, $20,000, and from fuel tax, $10,000; in round numbers, $200,000 for cost of schools; 1,500 districts had winter and 1,400 summer schools in session from sixteen to forty-four weeks in the year; 75,000 children were enrolled, with an average attendance of 52,000; 8,400 pupils were found in 410 private schools, at a cost of $164,000; nearly three-fourths the sum expended for the 8,400 pupils in private as for the 75,000 children in common schools. More than 1,700 teachers received, for men $18.50 and for women $8.22 per month. Only 270 of these taught the same school in summer and winter, and 570 were teaching with no previous experience. Sixty schools had been "broken up" during the year from incompentency of teachers. Nearly one-half the teachers were "boarding round." Of the schoolhouses, 240 were reported "very good," 460 "very poor," more than one-third without sanitary arrangements for common decency. The reports of the county inspectors, appointed by the superintendent, are full of complaints of "popular apathy." A notable Fast Day sermon, by Rev. Mr. Goodrich, of Bristol, concentrated these defects of the system in a powerful and earnest appeal to the people, which was republished as a portion of the report of Secretary Barnard.

But much had really been done: A true educational public had been aroused; a body of efficient supervisors and educational workers had appeared, evolved by "natural selection" from the teachers and writers who were often better known and more influential outside the State than at home; a majority of the teachers were being gathered into the annual institutes and the State normal school; a State and several local associations were waking up the people at their numerously attended meetings addressed by the ablest school men from abroad and at home; an improved code of school laws had been spread on the statute books and the way at least opened for the proper consolidation and simplifying of the school life of the Commonwealth. And more than ever the fame of the great educators of Connecticut had been spread abroad and often with a better reception than at home were they received and put into active school life, especially in the new and growing States of the West. Meanwhile, New York, so largely dependent on Connecticut for the early establishment of her common schools, was now so far advanced that both Horace Mann and Henry Barnard magnified the Empire State as the foremost educational Commonwealth in the world.

Among the eminent men in Connecticut to whom Henry Barnard was greatly indebted, not only for constant aid and comfort during his eventful career of superintendency in his native State and Rhode Island, from 1838 to 1855, but for perpetual suggestions in his philosophical and practical ideals of education, was Rev. Thomas Hopkins Gallaudet. But, far beyond his great contributions to his own State, was the influence of Mr. Gallaudet felt through the whole country; directly as the leader in the education of the deaf and dumb and indirectly for the reformation of the methods of primary, mental, and moral instruction by his grasp on fundamental principles and scientific methods thereby obtained.

This admirable man came into the world with a furnishing of heredity that was in itself an assurance of greatness. He was of a good Huguenot French strain, blended with a descent from Italy running up to a superior class of Venetian ancestors, reenforced by a vigorous Scottish and the best of Puritan blood. Thus furnished, he seemed destined from his cradle to that finest blending of Christian fervor, physical sensibility, pedagogic aptitude, and invincible will that

was the inspiration of all he did and of much that from the hindrance of delicate health he could not achieve during his crowded life of 63 years.

His father, after a varied life in Philadelphia, New York, and Hartford, was drifted into Government employment at Washington, where his grandson now presides over the National Asylum for the Deaf and Dumb, and there died at an advanced age. Among other good things, he established in his eightieth year, in 1835, "the Washington Manual Labor School" and "Male Orphan Asylum." Its expenses were heartily met by the unique work, "the facsimile of George Washington's public accounts while commander of the armies of the thirteen colonies during the Revolutionary war." The institution was afterwards merged with the Deaf and Dumb Asylum before mentioned.

Thomas Hopkins Gallaudet was born in Philadelphia in 1787, the oldest of a family of twelve children. He was fitted for College at Hartford, Conn., and entered Yale as sophomore at the age of 15, graduating in 1805 with high honors; President Heman Humphrey, of Amherst College, and Dr. Gardiner Spring, afterwards of New York, being his associates in class distinction. Yale was then under the presidency of Dr. Timothy Dwight, with Professors Day, Silliman, and Moses Stewart in the chairs of instruction. Like Barnard, he entered on the study of the law, but after a year was compelled by failing health to seek an outdoor life. As the "traveling man" of a New York commercial house he visited large portions of the West and Southwest, and afterwards was connected with the firm in a New York counting room. From this occupation he was drawn by his strong leaning to the life of a clergyman and entered Andover Theological Seminary, from which he graduated in 1814. Declining several flattering offers for a permanent settlement in the ministry, he returned in 1814–15 to Hartford.

Here, at the age of 28, he was found awaiting the providential call of his life. A little deaf and dumb daughter of Dr. Mason F. Cogswell, a distinguished physician of Hartford, was "the little child that led" young Gallaudet to the strangely neglected but wide and rich domain of education in which he won a national fame and achieved abundant success. In the attempt to teach little Alice, his attention was directed to the reputation of the three English schools of this sort, and especially the writings of the famous Abbé Sicard, of Paris. Up to the year 1800 there was no knowledge of such a department of education, and in 1815 but one small school of the kind in America. His success with his little pupil woke up a lively interest, and an association of leading gentlemen furnished the moderate means for a short visit abroad of observation and instruction.

In the summer of 1815, Gallaudet, a Connecticut young man in pursuit of information on a great subject, appeared at the front door of the Institution for the Deaf and Dumb in London asking for admittance. But, with the true spirit of British isolation and exclusiveness of that period, the training of the deaf and dumb was a private monopoly, and he could not obtain the privilege of admittance, much less of instruction, except under conditions so humiliating that to receive it would be a positive degradation. Failing in the same way in Edinburgh, after making several valuable acquaintances, like Dr. Chalmers and Dougal Stewart, he went to Paris, where he was welcomed at the institution of the Abbé Sicard. After several months of close study he returned to Hartford, accompanied by Mr. Laurent Clerc, an experienced deaf and dumb instructor, who during the remainder of his long life was the soul of the new institution which he entered in 1817 as assistant, though really the instructor of Mr. Gallaudet. During his residence in Paris he preached in an English church, and his discourses, afterwards published, showed that in the profession for which he had been educated he would have become one of the lights of the American pulpit. Beside a small establishment in Virginia, there was at this time no institution of the kind in the country.

Through the influence of a group of the best-known men in Hartford, a subsidy of $5,000 was obtained from the Connecticut State legislature, and afterwards

$17,000 gathered by the exertions of Mr. Gallaudet in several cities. In 1817 he entered upon his notable career of fourteen years as principal and teacher in the Hartford Asylum for the Deaf and Dumb. Through his own appearance before the Congress of the United States an appropriation was made of a grant of 23,000 acres of public land, from which was realized a permanent endowment of $300,000 for the institution. It was dedicated with the usual solemn public ceremonies by which New England always loves to inaugurate a good work of education, philanthropy, or religion on May 22, 1821.

The first pupil was Alice Cogswell, and the fifteenth Julia Fowler, whom Mr. Gallaudet married in 1821. She lived fifty-six years and proved herself a true helper in all the relations of his home and public life. It was soon discovered that the new principal was, in the words of his son, "a born teacher, and a teacher of teachers as well as of children." He made a wonderful success in the development of the language of signs to which he was devoted. Like other specialists, perhaps he did not quite distinguish the fact that his own success in this was inseparable from his personal genius rather than from its general use and practicability. It is said that at the request of the famous Connecticut painter, Col. John Trumbull, the story of the condemnation to death by Brutus of his two sons was entirely communicated by facial signs so correctly that a pupil wrote it all out. His biographer finds in this a trace of his descent from an Italian ancestry.

But, as so often happens, this man of commanding genius, at once known and acknowledged through the Republic by his labors in several States as the founder of similar institutions, was compelled to live the life of a pedagogic drudge at home. At the end of a chronic state of friction with his board of directors concerning details of administration he felt compelled to retire from the institution, after fourteen years of a service that, despite his habit of self-sacrifice, rendered him a perpetual subordinate. But, as a member of the corporation, his advice and aid were always at the service of the institution. His policy of administration was finally adopted, and in later years, at a great gathering of 400 graduates and pupils of similar asylums, a remarkable memorial service was held with the usual gift of professional silver. To-day his monument, built by the contribution of pupils and graduates of asylums, stands in the grounds of the original institution at Hartford, and a similar memorial may be seen at the national asylum at Washington, which was established largely by his influence and is now presided over by his son.

But this was not the only instance where a man of commanding genius has been "retired" upstairs by an unappreciative community into a broader sphere of his life work. In 1830, at the age of 43, Rev. T. H. Gallaudet was without question the foremost man in his own specialty in the United States. But for the twenty remaining years of his life he stood before the whole country as one of the broadest, most original, and practical of American educators, in the best sense of the term. Declining repeated invitations to almost every conceivable position of honor and profit in education, philanthropy, and the Christian ministry, he gave himself for eight years to the work of educational authorship. He had already become known by his numerous contributions to the coming educational revival, especially by a series of letters on the normal training of teachers in 1825, and other writings in support of common schools. His profound studies in child-nature applied in the training of the deaf and dumb had brought him into the very arcana of the philosophy of the natural methods of instruction, now a recognized authority in all schools, and his contributions to this most attractive realm of pedagogics were perhaps more valuable than those of any American educator of that period. The children of to-day, whose most exciting mental occupation is dodging the hailstorm of juvenile literature, do not realize that seventy years ago there was practically no children's library of native authorship save the delightful publications of Peter Parley (S. G. Goodrich), also a Connecticut man. We remember well how eagerly we fell upon Mr. Gallaudet's charming

little "Child's Book of the Soul," and the series of scripture biographies and writings for the home, school, and church which during these years came from his pen as from an overflowing fountain of wisdom and love. The American Tract Society alone printed and circulated 600,000 copies of these admirable publications, and they were translated into all the leading European languages and read by thousands of old and young around the world. Among his writings of great educational value was the widely read essay, "Public Schools a Public Blessing."

But, like many other distinguished friends of the common school, he never found one where he would educate his own five children, all of whom were trained in a model school in his own house, with a few companions, where he had them in constant oversight. His services as lecturer and official in public and private seminaries, with constant calls to the pulpit and annual addresses, were a profession in themselves. He spent several months in a laborious visit through the West and Southwest, on an evangelical mission among the German people of those States. He was the president of the Hartford Missionary Association, and all his life greatly interested in the work of the Colonization Society for the Free Negroes, one of the benevolent dreams of that far-off time. During the last years of his life he served as the chaplain of the Retreat for the Insane at Hartford and displayed wonderful aptitude in reaching and controlling the unfortunate inmates of this asylum. In 1838, at the age of 49, he was urged to accept the office of secretary of the new Connecticut State board of education, Henry Barnard, then in the legislature, offering to assist in making up a salary sufficient for his support. Earlier than this he was the first choice for the presidency of the first State normal school established in the country, at Lexington, Mass.

But in the delicate state of health in which he remained for the last twenty years of his life, he was doubtless wise in his avoidance of professional or public position. Thereby he became a sort of universal father and adviser of all the prominent educators of the land, and, more than any one man, was sought out and held in wide esteem as an authority in pedagogics and the wisest friend of the teachers and children. He was always a devout believer in the substance of the old-time Evangelical religious creed, as modified by the enlarged interpretation of men of great spiritual genius, like Dr. Horace Bushnell, and always a preacher of the religion of everyday living. His moral scruples even extended to the avoiding of political action, and his only vote was cast, at the age of 61, for President of the United States. "He was the best beloved of all men; a true son of the light." As the director for the Hartford Retreat for the Insane wrote, "When he died, sunshine went out of the house." In the language of another, "He possessed the rare genius in pedagogy in making even children themselves feel that education is a priceless thing."

Dr. Gallaudet died in 1850, worn out with labors that might task the energies of many strong men, at the age of 63, in Hartford. But he had lived long enough, like his great friend, Dr. Barnard, to see all that he had projected, and more than he had ever dared to hope, become the common possession of the whole country, both in his specialty of the training of the deaf and dumb and, generally, in the eminent success of that revival of popular education of which he was one of the chief apostles.

He received collegiate honors from an institution of learning in a State that was a wilderness when he was born—the Ohio Western Reserve College; and his final home in Hartford was made possible by an appropriation of money from the board of directors of the institution from which he had found it greatly for his comfort to retire twenty years before. It is from such men and women, as from deep reservoirs of wisdom, love, and beauty that the great educators of every generation refresh their failing stores of inspiration and power, and go forth "with strength renewed, like the eagles," "to fight the good fight" for the children and "keep the faith" in education as the soul of the nation's life.

HENRY BARNARD IN WISCONSIN.

The period between January, 1855, when Dr. Barnard resigned his second school superintendency of Connecticut, and June, 1859, when he assumed the position of chancellor of the University and agent of the board of normal regents of the State of Wisconsin, was by no means barren of results to this indefatigable educator. He had revisited Europe, and for him a visit anywhere was an occasion for careful observation. The American Journal of Education was begun, and a score of valuable articles, each a treatise, had been prepared for its pages. But three more essays at a life of executive activity were to be made before he could give himself fully to the great labor of his last thirty-five years, even yet prolonged; the brief and energetic episode of his presidency of the University of Wisconsin from June 1, 1859, to January 1, 1861; the even more brief and less eventful assumption of the presidency of St. John's College, Maryland, in 1866; and his final work, as first Commissioner of the national Bureau of Education, from 1867 to 1870. Our present interest is chiefly concerned with the first of these terms of educational supervision.

The early history of the common school in Wisconsin has elsewhere been told, and it only remains to glance at the condition of popular education in this new State in 1858 in order to frame the familiar figure of the man who by this time had richly earned the title "The national educator." Among the frequent educational visits of Dr. Barnard, ranging from Charleston, S. C., to the new Northwest, perhaps the most fruitful was his appearance at Madison, Wis., at the invitation of Hon. John H. Tweedy, in 1846, to present the subject of popular education to the constitutional convention of the Territory. At a meeting called for that purpose, Dr. Barnard outlined a scheme for public education which, reduced to writing, was practically accepted and incorporated in the constitution then submitted to the people. It included local taxation in connection with the distribution of the State school fund; a general superintendency of education, and the establishment of a State university, with a normal school department. This constitution was rejected by the people. But in 1848 the same provisions became a portion of the new scheme as a permanent article of the fundamental law. The subsequent legislation under the constitutional provision was largely drawn from Michigan, the first Northwestern State that had at once put on the ground an effective and complete system of public education without the violent struggle and long delays that hindered the effort in Ohio, Indiana, and Illinois.

In 1851 the State of Wisconsin was admitted to the Union, with a population of 305,391. The State was indebted to Mr. Root, afterwards first State superintendent of common schools, for the present wording of the educational clause, and he seems to have been largely influenced by a graduate of the Albany, N. Y., normal school, a pupil of Principal Page, who was then a teacher in the Territory. The common-school ship was bravely launched with only one-half the children of school age (4 to 20) on board, at the moderate expenditure of $76,000. But in the stimulating air of the new Northwest all good things grow apace. In nine years the large sum, for a new State forty years ago, of more than $1,000,000 had been expended for the common schools, more than one-fourth the entire revenue of the State. A series of active superintendents—Root, Ladd, Wright, and Barry—had urged on the State to grapple with the situation. For nine years in succession a new recruited army of children, 25,000, appeared each year at the schoolhouse door.

In 1858 Wisconsin nominally stood at the head of the common-school States in the proportional number of children of school age. Her school fund, derived from the national gift of public lands, was already $3,000,000, with a prophecy of $5,000,000 in a not distant future. There were already a score of free high schools established in as many of the larger towns. Milwaukee boasted a schoolhouse

costing $28,000. The university had already been founded, but was hardly yet in vital touch with the people, its whole number of students not exceeding 100, with a smaller number in actual collegiate studies. The department of instruction under Professor Reid scarcely numbered a score of young men.

The administration of Hon. Lyman C. Draper, in 1858–59, as represented in his voluminous and vigorous reports as State superintendent of education, seems to have marked a new era. These documents, like many subsequent reports from the State and local superintendents of education in the Northwest, are elaborate treatises on the public school question, with long quotations from the foremost educators of our own and other countries, important declarations of celebrated statesmen, pages of interesting correspondence conducted by the school authorities of the State, and eloquent appeals to the laudable pride and ambition of new Commonwealths in constant peril of being absorbed in the exasperating conflicts of partisan politics and the material development of a new country. Among other topics the great importance of the superior training of teachers is discussed at length. After an intermittent debate of six years, the legislature of 1857 had passed a law for the establishment of a normal school fund from the income of an extensive region of swamp lands—a misleading name for a vast area containing much valuable real estate. The yearly income was to be divided among such colleges, academies, and high schools as were willing to submit themselves to an examination and partial supervision by a board of State normal regents. The law also provided for a normal department in the university, and a small appropriation was made for a professorship of pedagogy as an annex to another chair of instruction.

But even then the enormous work of launching a new American State as extensive, at that date, as each of a dozen European kingdoms, was only begun. Superintendent Draper declares that nearly 100,000 children and youth, one-third of the entire school population from 4 to 20, were in no school. This was not so poor a record as it may seem, since an overwhelming majority of the children in the Union even now leave school before the age of 14, and in a new Territory, thronged by recent immigration, the labor of boys and girls between 12 and 20 would be an important consideration. Of 244,000 children and youth of school age, 167,000 were enrolled in the common schools, with 90,000 outside. In the the same year Ohio, Michigan, and Indiana reported but one-half, Illinois one-fourth, and Massachusetts and New York three-fourths of their school enumeration in attendance. But it is probable that in New York and Massachusetts the school age was shorter at both ends. In 1857 there were, in round numbers, in Wisconsin 4,000 school districts and 3,480 schoolhouses, one-third built of logs, and a school property of $1,127,000. Male teachers received $27 and females $15 per month; 1,375 school libraries contained 38,000 volumes. In nine years after its admission to the Union as a State Wisconsin had expended $2,000,000 upon its public schools, one-fourth of the entire public expenditure of the Commonwealth. The annual income of the school fund of $3,000,000 was $200,000, 75 cents for each person of school age in the State. Training for teachers had been well secured by a provision that one-fourth of the income of the public swamp lands should be a perpetual fund for this purpose. Teachers' institutes had been established and several institutions of learning had availed themselves of the appropriation for normal instruction.

It was under these flattering conditions that Dr. Henry Barnard was called from his laborious literary retirement to renewed activity, this time in the supervision of the higher and normal departments of education. Each of these in Wisconsin was under a separate organization and both were a portion of the public school system. His previous appearance in the State, with the added experience of twelve years in Rhode Island and Connecticut, had aroused the highest expec-

tations. Superintendent Draper devotes a generous space in his report of 1857 to an account of the public career of the great educator, and heralds his coming in the following eloquent words: "As a promoter of the cause of education, the career of Dr. Barnard has no precedent and no parallel. We have reason to felicitate ourselves on the acquirement of such a man. It ought to form a new era in our State history, and it will if we are true to ourselves and true to him. We shall best favor ourselves and bless the State by listening confidingly to and carrying into effect whatever suggestions and advice such a man as Henry Barnard, with his ripe experience and noble devotion to the good of his race, may deem it his duty to offer on matters pertaining to the great cause of popular education in Wisconsin." Certainly, with a public school term of but five and one-half months, 1,000 children in one all-out-doors county unable to attend school for lack of proper clothing, and only two-thirds of the school population, all in need of instruction, inside even a log schoolhouse, the coming of this man of national reputation, "trailing clouds of glory" from his abundant success in the far-off East, was an apparition to awaken the most extravagant demonstrations of an excited frontier expectation.

Dr. Barnard was called to the chancellorship of the university and the agency of the board of regents of the normal-school fund in 1857. His coming had also been announced by State Superintendent Barry as "the most important event in our educational history, if not, indeed, the most important, in view of its public consequences, that has ever transpired in the history of the State." His specific duties as agent of the normal board of regents was "to visit and exercise a supervising control over the normal departments of all such institutions as shall apply for a participation in the normal school fund, to conduct teachers' institutes and normal instruction in the same, and to cooperate with the superintendent of public instruction in procuring a series of public educational addresses to be delivered in the various parts of the State." It was even declared that "the State was passed over, as it were, into Dr. Barnard's hands."

It was a very difficult and, on its face, a vastly greater opportunity than the call of Horace Mann at an earlier date to the presidency of Antioch College, Ohio; financially bankrupt from the start and environed by a thorny wilderness of sectarian, provincial, and personal jealousies. But the very extravagance of the great expectation and the pathetic confidence of the educational public of an entire Commonwealth in Dr. Barnard's case was, in itself, the chief peril of the situation. The school affairs of the State were in the condition of a lusty youth every year "outgrowing his clothes" and plunging into life under the combined supervision of two "governors," each looking somewhat askance at the other and both a good deal at sea concerning the proper management and the probable cost and outcome of training their precious charge. The two bodies of regents and the common school authorities, represented by the State superintendent of instruction, were getting into action without strictly defined definition of their respective duties. And it was several years before the present university and normal school system were finally established on a foundation as nearly ideal as may be expected in an American Commonwealth, the university supported by an ample tax on all the property of the State, and the five normal schools and teachers' institutes provided for by a permanent fund of $1,000,000.

The actual coming of Dr. Barnard was delayed till June 1, 1859. But, as usual, he began the work with the tremendous impetus of the great sweeping machine that does the work of a small brigade of men wielding the old-time street brush-broom. It is recorded that the new chancellor, contrary to the practice of the regulation college president of the day, confined his labors in the university to his proper sphere of supervision—the laboring oar being still worked by the faithful Professor Sargent, practically the continuous "dean of the faculty," through the most trying early period of the institution—and gave little time to instruction.

But there was an ample and more urgent field for his peculiar genius in the organization of the difficult normal enterprise that had been undertaken by the State. At once he took the agencies on the ground in hand and worked in good faith, whatever may have been his private judgment concerning the system in operation. He introduced a series of oral and written examinations of the normal classes in the colleges, academies, and high schools. In this he did all that could be done to lift the discarded New York system of subsidizing irresponsible private seminaries for training the teachers of the public schools. The effort was doubtless somewhat beneficial, although it only amounted to a compromise with the public obligation of establishing a system of State normal schools. This work was delayed by the oncoming and outbreak of the civil war. The normal department of the State University, under the pedagogic superintendence of Professors Reid and Charles A. Allen, never became an element of considerable importance. Perhaps its best result was in opening the doors of the university to women, for the large majority of the normal students were of that sex.

Another excellent service was the republication of four of the educational documents that were now appearing from the indefatigable pen of Dr. Barnard. Of these papers treating of the organization, instruction, and discipline of common schools 1,000 copies were sold among the teachers of the State.

But Dr. Barnard gave his most effective service in Wisconsin through the institutes for teachers. He was the true father of this national normal school on wheels, and up to this period no man had it so well in hand. During the autumn following his advent in the State he had organized and conducted with marked success a series of institutes in twenty counties, that reached three-fourths of the teachers in Wisconsin. Several prominent educators were called in as workers in this field, in which Dr. Barnard was himself the most inspiring of leaders. Several of these gentlemen remained in prominent positions in the State. In his last report Superintendent Draper writes "the gratifying success which has attended the teachers' institutes under the direction of Chancellor Barnard, held during the past autumn, should be regarded as among the most hopeful signs of the times." "First and foremost is the great work of providing a better education for the masses of the people, and like Saul, the son of Kish, a head and shoulders above his fellows, is Henry Barnard. He comes to us ripe in educational experience, and is devoting with unflagging energy the best years of his life to the honor and glory of Wisconsin. In the marked success which has attended the series of teachers' institutes held at various points in the State during the past autumn we have the strongest assurance of the future. Our normal schools, our teachers' institutes, and teachers' associations, these all-important agencies in elevating the character of the free schools, will all feel the genial influence of his persuasive instruction and the marvelous power of his zeal, his talents, and his genius. With such a leader all should be proud to follow, and for such an educator, all untiring as he is in devising plans for the achievement of a yet higher standard of intellectual improvement, we should all—legislators, school officials, teachers, and people—feel it always a privilege and a duty to strengthen his hands and encourage his efforts."

There is no evidence that the educational public or the people of Wisconsin were disappointed in their expectations of the value of the services of their new citizen educator. But the time of his coming was not auspicious for the cause of education. Already were the clouds thickening along the horizon that prognosticated the breaking of the awful tempest of the civil war. Wisconsin was among the most radical and earnest even of the Western States in its policy of resistance to what it regarded the aggressions of the slave power, and in its legislation concerning the return of fugitive slaves had practically thrown down the gage of battle. During the short eighteen months of Dr. Barnard's residence in the State—June, 1859, to January, 1861—the public mind was like a troubled sea, and not even a pilot as enthusiastic and confident of himself as Dr. Barnard could

have steered in safety through the raging billows. And it had already been demonstrated that he was not by temperament or physical constitution in his own highest place in the post of school administration. Even in Rhode Island and Connecticut, excellent as were the results of his labors, it is not improbable that his greatest influence was through the wide circulation of his written documents that were "flying on the wings of the wind" all over the country and even across the ocean, with his frequent visits to different portions of the United States, where he appeared like an inspiration, and left everybody more assured of the good cause. And not the least notable of his qualities was that "persuasive faculty of instruction," the genial temperament which De Quincey declares the evidence of all true genius, which amid the dogged conservatism of the old Connecticut and Rhode Island East and the perilous enthusiasms of the new, progressive West, left him always the same, impervious to public approbation or neglect, ever intent on the main object in view.

Such a man is always weighted with a double burden, the inflexible will and tireless industry to do the work at hand and the even more exhausting mental occupation of watching the issues of all movements as they bear on the general outcome of the nation's life. It was this, a man carrying a whole country on his shoulders along with the active administration of the most vital interests of one community, which eventually broke down the oversensitive physical constitution of Dr. Barnard. This time the collapse came even while his followers admired and published abroad his untiring energy of labor. In 1861 he resigned, again prostrated and in sore need of what he called "entire rest."

In 1860 Superintendent Pickard, the successor of Superintendent Draper, himself one of the ablest and most honored educators of the new West, speaks thus of Dr. Barnard in his first report: "Several volumes of great value to teachers have been prepared and published during the year by Hon. Henry Barnard. They have been meeting with a ready sale, as they certainly deserve. Dr. Barnard has given such an impetus to the cause of common-school education and, through these volumes above alluded to, has furnished such effective helps to the teachers as will cause universal regret at the necessity under which he is laid of seeking the restoration of overtasked and wasted energy by entire absence from the scene of labor. Much has been anticipated from the labors of a man so widely known and so universally respected as Dr. Barnard. Much has already been done. Sickness has checked, but, I trust, not entirely ended his work with us."

It was perhaps fortunate that his retirement was thus forced upon him so early in his career of usefulness in the Northwest. The great civil war was now upon the country and it would have been impossible to have carried on the work of administering the higher educational affairs of such a State as Wisconsin with satisfaction to himself during the coming five years. He had already sounded his own high note of a broad and practical consecration to the cause of the children. And Wisconsin, like all these great Commonwealths, had at home an adequate supply of executive educators who, better than any leader, however famous, from elsewhere, could guide the people through the difficulties of a permanent establishment of public education. Dr. Barnard returned to the work that always stood waiting for him, the editorship of the American Journal of Education, which was but another name for the compilation of the first great educational encyclopedia which, after the test of a generation, remains the noblest collection of material for the study of the growth of every department of educational activity through its development from the origin of the American colonies to the second century of the national life.

The termination of Dr. Barnard's connection with the University of Wisconsin was the proper close of his executive contribution to the great revival of education previous to the outbreak of the civil war. His subsequent temporary presidency of St. John's College, Maryland, and his final services as first Commissioner of the national Bureau of Education, between 1865 and 1870, pertain to a later period.

The American Journal of Education.

But all these labors, now continued for twenty-five years in official life in three States, with a constant habit of visitation, observation, and advice through the Union, were but the overture to the grand opera of the life of Henry Barnard. By native genius, temperament, habits of study, and a wondrous facility of literary production, he was by common consent the chief representative of the literary side of the great educational revival during the thirty years previous to the civil war. Compared with his omnivorous intelligence, the researches and reports of all the educators who visited Europe during this fruitful period pass into eclipse. It was of the first importance that when the attention of the American people was directed, as it has never been but once since, to the national lead of popular education, the leaders of public opinion should not be left to the partial and local results of the experimenting and experience of the first generation of the national life. While everything coming from abroad must be adapted to our own national characteristic ideals and methods of education, it is still of the first importance that the American educational public should be placed in close relation with the great educational theories, systems, and practices of the peoples whose achievements have been the most notable of the civilized world. It was also as important that the different States and sections of our own country, originally separated by obstinate provincial prejudices, should be brought together by a fair comparison of the best that had been done in every State and section. Here was a field so interesting that it is not remarkable that a mind so capacious and a spirit so catholic as Henry Barnard should, early in his career, have planned a lifework to meet this imperative demand.

As early as the beginning of his educational career, in Connecticut in 1838, this idea had possession of him. The Connecticut Journal of Education was only a rehearsal of the great educational library and encyclopedia now known as the thirty-one volumes of the Henry Barnard American Journal of Education. The same idea runs through it. While containing a great deal of valuable matter adapted to the condition of the schools in Connecticut, every number was ballasted by a solid treatise, often in the form of a report in some direction, that was an exhaustive treatment of an important theme. At the close of his first term of secretaryship in Connecticut, in 1842, his great plan of a history of education in the United States seems to have been clearly before his mind, and he commenced the preparation of documents containing the results of his studies, reenforced by his valuable experience of superintendency. The call to Rhode Island suspended the proper development of his plan; but it was partially carried out in the publication of the Rhode Island Journal of Education, which was the continuation of the method of editing already seen in the Connecticut Journal. During his second term of service in Connecticut the aid of the legislature was granted to the publication of a series of papers of great value, including the history of school legislation in that State.

The materials were already at hand for a proper beginning of his long-contemplated work. In December, 1854, Dr. Barnard presented to the American Association for the Advancement of Education, held in the Smithsonian Institution in Washington, a broad "plan of a central agency for the advancement of education in the United States." It was received with favor by the association and a committee appointed to carry it into effect "as far as the funds of the association would permit." It is impossible, in reading over the vast project then outlined by Dr. Barnard, to see anything but the original conception of what is now the central American agency, the national Bureau of Education, of which Dr. Barnard was the first commissioner, from 1867 to 1870. Almost every feature of the present Bureau, even the contemplated journal, which is represented by the Bureau's "circulars of information," was there seen in prospect by the great American educator. But there was then neither the funds nor even the disposi-

tion to venture out to sea on a voyage so uncertain by the committee of the association.

Therefore, true to the most characteristic habit of a man of genius—to undertake on his own responsibility what no one else could be persuaded to attempt—Dr. Barnard, in 1855, in connection with Rev. Dr. Peters, who had edited the College Review and Educational Magazine, published in August, 1855, as a literary venture, the first volume of the American Journal of Education and College Review. At the end of the second volume, December, 1856, this arrangement had come to a natural end, and the American Journal of Education was announced by Henry Barnard. To this work he has consecrated his whole life, even to-day lingering around its final arrangements. In the present shape it is a library of thirty-one stout volumes of 800 pages each, 25,000 pages; a proper encyclopedia of education. During the past twenty-five years the international expositions at Vienna and Paris have shown their appreciation of this work by gifts of bronze, silver, and gold medals, responsive to similar acknowledgments at home. The foremost educators of all nations have declared that it is the most valuable collection of educational materials in the literature of any language.

The conception of this great work was worthy of the broad and generous mind of Henry Barnard and could only have been realized by an educator of his peculiar characteristics. The first circular announcement, in 1855, reads as follows: "In the great educational movement now going forward on this continent, and especially throughout all the States in which the English language prevails, there has seemed for many years to the undersigned to exist, if not a demand, at least the want of not only an American association of the friends of universal education, but also of a series of publications which should, on the one hand, embody the mature views and varied experience of wise statesmen, educators, and teachers in perfecting the organization, administration, instruction, and discipline of schools of every grade through a succession of years, under widely varying circumstances of government, society, and religion; and on the other hand, expose real deficiencies, excite to prudent and efficient action, and serve as a medium of free and frequent communication between the friends of education in every portion of these great fields."

The editor also describes it as "a series of publications, including a periodical to be issued monthly or quarterly, devoted exclusively to the history, discussion, and statement of systems, institutions, and methods of education in different countries, with special reference to the condition and wants of our own." And with that wise policy, which is only the law of truth, love, and justice applied to a subject so involved with infinite possibilities of difference and discord as general education, he pledges himself "to studiously avoid the insertion of all topics or papers foreign to the great subject to which it is devoted, or of a single line or word calculated to injure intentionally the feelings of any faithful laborer in any portion of the great field of American education."

Such words of healing import must have come like a balm upon the discordant host that the "faithful laborers in the great field of American education" was in 1855. And when we remember that, of all American educators, even not excepting Horace Mann, no writer of first-rate eminence had so bravely stood up for the highest and best, even as an official in his own State had exposed with a severity so relentless the faults, follies, and perils of the prevailing system of public instruction, we can understand what a task this man set before himself and what were the probabilities of success in a plan apparently so visionary.

That it did succeed after a fashion so decisive that the thirty-one volumes of the American Journal and Library of Education for a full half century after its first clear conception by Dr. Barnard remain still unique and unrivaled in any language is the most complete testimony not only to the historical but to the great literary genius of its author. And when to this we add the even more pertinent fact that all this was done with no effective cooperation from the publish-

ing fraternity, even with a scant support from the professional class for whom it was specially compiled, at the financial ruin of one of the most devoted educational apostles of the country and period, our interest and admiration rises to reverence. The practical destruction of such a work, as Robert Herbert Quick wrote, would be equivalent to the "pulling down of one of our cathedrals and selling the stones for building material," and this was averted to some extent by the useful "analytical index," prepared as a guide through the vast and bewildering spaces of this wilderness of precious material. It will be indeed a reflection on the intelligence, not to say the gratitude, of the American educational public if a final editor is not found who can so rearrange and classify this work and bring its historical record of education down to date as to realize the splendid ideal which, like a guiding star, held its devoted author up to long years of research and financial sacrifice through the latter twenty-five years of his life.

Indeed, the neglect of appreciation that compelled Henry Barnard to such toils and sacrifices was but another evidence of the inability even of an educated and patriotic community to compass the aim and end of a scheme so vast or to understand that a man may be defeated on the grandest line of operation for lack of the most ordinary sympathy and material support. Even to-day an enthusiastic and successful teacher of a mission school of 500 children, with a photograph of his building and a club of singers, can collect more money in a week in any great American city than the United States Commissioner of Education in his heroic endeavor to lift up to permanent recognition this greatest literary educational work of the Republic, indorsed by the foremost educators of the world. By a singular fallacy of even the cultivated imagination and philanthropic sentiment, the man who "lives and moves and has his being" in the capacious realm of far-reaching and universal plans is supposed to have at his command the resources of the whole country for its prosecution. But the venerable author of this noble work may yet have to add the final wreath to his "crown of rejoicing" that not only has every position, ideal, and plan of his general scheme of popular education become the commonplace of the American common school, but his own world picture of education in all its departments has been accepted and esteemed as it deserves.

The plan of Dr. Barnard in this publication was like the dream of Lord Bacon in the Organon—to take all education for his province. The work gives in sufficient measure and detail for the practical understanding and use of the general reading public of the United States a fair history of education from the earliest ages to the present time. Its account of the great modern revival of the educational spirit and methods, under the leadership of central Europe, from Comenius to Froebel, is ample for general understanding and use. Its résumé of educational history and recent activity in Great Britain lays a solid foundation for the just comprehension of the Colonial and early national history of our American common school. Its elaborate illustrations of the new education—academic, collegiate, scientific, and industrial—in our own country is so intelligent that even the humblest inquirer can read. A careful examination of this great work by a competent reader will explain the fact that every essential feature and the most effectual methods of our present common school life have been outlined, suggested, and elaborated in their present form during the educational career of its author.

The complaint of the class of critics who find only confusion and evidence of careless, unskillful, and crude editorship in this great encyclopedia is rather a criticism of their own lack of appreciation of his situation and of the environment of his work than of the author. Dr. Barnard did not propose to prepare a universal encyclopedia of education or build a monument of literary enterprise. His large and unique scholarship and catholicity of appreciation for all nations and peoples was shot through and through with an intense and practical patriot-

ism. He declares at the outset his intention to do all this "with special reference to the conditions and wants of our own country."

It was not only excusable but absolutely necessary to condense important works, to present high scientific methods and profound philosophical systems of education in intelligible shape, and generally to adjust, apply, and concentrate the entire wealth of Old World thinking and doing with special reference to this end. Henry Barnard, with all his preoccupation in broad views and prophetic plans, was no builder of educational air castles, but a true son of old Connecticut and the Republic, always working with a clear picture before him of the last little school he had visited or the most destitute or neglected hamlet in the land. In this he was an instructive example for so many ambitious educators who now insist on forcing not only Old World methods of instruction but of administration on our national school life.

The complaint that the information concerning educational affairs in our own country is not classified and wrought into a connected and complete history in this work only reveals the lack of knowledge of the actual condition of educational affairs in our country even to-day, not to say during the period when its materials were collected. In half the Union, through fifteen States, until twenty-five years ago there was no reliable collection of the materials for such a history. The common school as we know it, save in a few cities and in an imperfect condition in two or three States, did not exist until several years after the close of the civil war. The multitude of private schools of every conceivable grade, not to mention the academical and collegiate foundations, have no established habit even of reporting their own conditions, much less of collecting statistics of their own class of seminaries.

The labors of Horace Mann and Henry Barnard may be said to have created the science of educational statistics in the United States. Until the past twenty-five years no serious attempt has been made to write a reliable history of education in any American State, and to-day the attempts at that history in the reports of Mann and Barnard are the best attainable accounts of the common school, even in the two States where it had its birth. It was fortunate that Dr. Barnard in 1842 did not give himself, as he first proposed, to writing a history of American education up to date. His attempt to collect the materials by travel, correspondence, indefatigable labor, and large expenditure of time and money must have early convinced him of the futility of such an undertaking. Until 1860 the National Library at Washington, according to the statement of its present eminent Director, "had never taken in pamphlets;" and in pamphlets and newspapers alone, in many of the States, could be found any considerable record of education during the first two hundred years of the colonial and national life.

In place of this, Dr. Barnard did what could only be done at that time. He gave himself, with the tireless industry and boundless patience that makes every great collector a national "bore," to the collection of every fragment of important information, every memorial of the most ordinary school, every monograph of a valuable institution, every plan of a schoolhouse or public structure for educational or philanthropic use—all statements, probably often misleading and colored by the personal ambitions and narrow outlook of local educators, and plans of operation by any sort of "faithful workers." All this required a largeness of mind and capacity of sympathetic appreciation only possible to an observer of original genius and great practical faculty. Dr. Barnard took information as it came, and gave it as it was, and secured it in its own place in the 25,000 pages of his 31 crowded volumes.

This vast collection of useful and original material, twenty-five years ago, was all that could be called a history of education in the United States. The true historical inquirer, even of to-day, can well appreciate the difficulties that beset Dr. Barnard in such an undertaking, and the priceless value of much that is found in this great treasure house of information. Often in half a page will be

found a clew to the understanding of the educational history of an entire period in the school conditions of a Commonwealth. The popular letters of a New England traveler in Pennsylvania, Illinois, or Tennessee may explain why the common school could not exist there till "the veil was taken away from before the face" of their people. This great work does indeed require the labors of a competent editor, working not in the interest of any pet theory or with a foregone determination to reconstruct any portion of the country or shatter any present reputation, but to condense, collate, and, if possible, put in better shape for the use of the country for which it was intended the vast and rich deposits in this great educational "placer," out of which the fortunes of a succession of pedagogic aspirants have been already realized, and which will remain a "gold-bearing" mine through generations to come.

With this account of the services of Dr. Henry Barnard, up to the year 1860, on the edge of the black cloud that was surging up from the horizon to herald the terrible five coming years, not even rolled by in 1870, the opening period of the second great revival of the American common school, we close this biographical sketch of the lives of the two great leaders in New England of the movement that revolutionized and reconstructed the original common-school system of the country. Here the common school was, from the first, a literary institution, under charge and in contact with the literary class. Its most influential administrators were clergymen and teachers; even the majority of the most distinguished public men of this section had at one time been teachers. Hence in New England the revival of the common school came up from and was held fast in the hands of the leading educational class, and the educational public was but another name for the educated people. The theological agreement among the Congregational churches which represented the only original American ecclesiastical polity and the homogeneity of the New England population kept the common school for the time outside the disastrous conflicts of creeds. What we now call "the religious question" was not a disturbing element, although the schools were greatly affected by the intense religious life of the time. Here and among the great body of those who swarmed from the old New England hive into the region beyond the Hudson River, we notice a great interest in the pursuit of education as a science. Horace Mann and Henry Barnard and the group of able school men and women that gathered around them became the foremost representatives of the great revival of the common school, and their powerful influence was felt through the entire country during the thirty years from 1830 to 1860.

We have presented these great leaders of the progressive American educational public at this period because it was only in New England that such a crisis could have appeared at the close of the first half century of the nation's life. And only in the two States of Massachusetts and Connecticut, where the American common school had its birth, where through the one hundred and fifty years of the colonial period it was the real popular university, and where it was near to the people's heart, might such leaders be expected to appear. From the first the common school in New England was in charge of the educated class. The Congregational clergy was still the leading educational body and the leader of the professional class up to 1830, and this was the most effective agency by which the State and the towns administered the public will in every department of education.

When we come to the great Middle States, the scene changes. The division of the people in their cosmopolitan civilization, owing to diversity of nationality, sect, and social caste, so involved the clergy and the teaching profession that the complete establishment of the common school was finally an upward movement from the people, engineered by and for many years virtually under the direction of the most progressive statesmen and the secular professional class. Hawley and Wadsworth and Seward, Dr. Franklin, Dr. Rush, and Thaddeus Stevens, Bishops Doane and Potter, the famous secretaries of state in New York—Spencer, Dix, and Young; Daniel D. Barnard and the Randalls and the group of eminent

public men like Van Rensselaer, and many of the eminent lawyers and merchants of the metropolis were, until a late period, the leaders of popular education. Even during the revival period, beginning in 1830, with the exception of Dwight and Page, no large number of prominent educators appeared to follow the steps of Dr. Eliphalet Nott and Mrs. Emma Willard.

The new "Great West," then hardly including the five Northwestern States east of the Mississippi, even until the civil war, owed the upbuilding of the higher grades of their educational systems largely to the labors of men who were profoundly interested in the public-school movement. Their leading college and academical presidents and professors were largely imported from the East and were so devoted to the denominational seminaries and colleges that the people were left a good deal to their more intelligent politicians and progressive men of affairs for the final establishment of the common school.

The Southern States, though including half the number of Commonwealths and more than half the settled area of the Republic, had little part in this general movement for the revival of the common school, outside the border and a few cities of the Southern Atlantic and Gulf States. Owing to the increasing agitation of the slavery question, it is doubtful if the negroes enjoyed the opportunity of the occasional instruction of their more capable class as in former years. The great mass of the nonslaveholding white people, with the usual exceptions of youth of marked natural superiority in ability and energy, were still left to the meager supply of the "field" and private schools and whatever satisfaction could be gained from the free-school system of several States; generally so poor that the people most in need had practically "no use for it." Three of these States had made a more decided and persistent effort to adopt the free common school for its white population—Missouri, Kentucky, and North Carolina.

But the revival of which we now treat was not inoperative through this extended region. The most thoughtful educational and public men of these States were greatly aroused and inspired, especially by the eloquent writings of Mann, Barnard, and others only second in rank. The visits of Henry Barnard to the South, especially in New Orleans, La., and Charleston, S. C., were influential in the establishment of the common school for white children in several of these cities. Horace Mann was also consulted in regard to the establishment of the first public schools in New Orleans, and sent there his friend, Mr. Shaw, whose name is still cherished in that city. The only United States Commissioner of Education from the South, Hon. N. H. R. Dawson, informed the writer of this essay that his own interest in the public-school system was awakened and educated by the correspondence of his father with Horace Mann.

But the South did not need to sit at the feet of the Northern section of the Union for instruction and encouragement in this direction. Indeed, the growing political hostility was probably to the prejudice of the common school as one of the most prominent features of Northern civilization. It was only necessary to look backward to Thomas Jefferson and the illustrious group of the fathers who, even before the establishment of the Union, joined hands with the North in the most important educational legislation of the century, the consecration of one thirty-sixth of the entire area of the national land patrimony to the education of the youth of all succeeding States, even at the sacrifice of their own imperative necessities, to look forward with longing eyes to the appearance of the new time coming. Many of the most striking appeals in behalf of public education in our national literature came up from these States to cheer and inspire the great workers in the North. No greater boon could now be offered to the South than the publication of a series of these documents, messages of governors, reports of legislative committees, the proceedings of educational conventions, and written addresses by eminent educators, in popular form for general distribution among the Southern people.

CHAPTER XVII.

REPORT OF THE COMMITTEE OF TWELVE ON RURAL SCHOOLS,

APPOINTED AT THE MEETING OF THE NATIONAL EDUCATIONAL ASSOCIATION JULY 9, 1895.[1]

To the National Council of Education.

The undersigned Committee of Twelve on Rural Schools, appointed at the meeting of the National Council of Education, Denver, Colo., July 9, 1895, has the honor to submit the following report discussing the rural school problem in its four several aspects, each of which has been the special care of a subcommittee of three persons, who have submitted their results from time to time to the criticism of the entire committee. These subcommittee reports are preceded by a general introduction, written by the chairman of the Committee of Twelve, in which a history of the formation of the committee is given, together with a brief summary of the recommendations of the several subcommittees. In the appendix[2] will be found a number of valuable contributions illustrative of different points made in the several reports.

HENRY SABIN.	S. T. BLACK.
D. L. KIEHLE.	W. S. SUTTON.
A. B. POLAND.	L. E. WOLFE.
C. C. ROUNDS.	W. T. HARRIS.
J. H. PHILLIPS.	L. B. EVANS.
B. A. HINSDALE.	C. R. SKINNER.

REPORT OF THE COMMITTEE ON RURAL SCHOOLS.

INTRODUCTION.

To the National Council of Education:

The undersigned, chairman of the Committee on Rural Schools, appointed at the meeting of the National Council of Education, Denver, Colo., July 9, 1895, would respectfully submit the following report:

At the meeting of the council on July 5 the Committee on State School Systems

[1] Reprinted from the edition published by order of the board of directors (Chicago: The University of Chicago Press, 1897).

[2] The appendices, to which frequent reference is made throughout the report, have not been reprinted. A list of them is given at the close of the chapter.

made a report on the rural school problem, through its chairman, Henry Sabin. C. C. Rounds, president of the council, urged immediate action, in view of the importance of the subject and of the growing interest in the question of improving the condition of the rural schools. Other members joined in the discussion, and, on motion of B. A. Hinsdale, the chair was directed to appoint a committee of five, who should submit a plan for the further investigation of this subject.

July 9 the committee reported as follows:

Resolved, That there be undertaken, under the auspices of the council, an investigation of the subject of rural schools, embracing such topics as revenues and expenditures, the constitution, organization, and duties of boards of management and control, and the provision of suitable teachers. More definitely, said investigation shall be conducted in general on the lines laid down in the report of the Committee on State School Systems submitted to the council at its present session.

Resolved, That a committee of nine be appointed to conduct this investigation, said committee to consist of the following persons: Henry Sabin, of Iowa; D. L. Kiehle, of Minnesota; A. B. Poland, of New Jersey; C. C. Rounds, of New Hampshire; J. H. Phillips, of Alabama; B. A. Hinsdale, of Michigan; S. T. Black, of California; W. S. Sutton, of Texas, and L. E. Wolfe, of Missouri.

Resolved, That the board of directors of the National Educational Association be urgently requested to appropriate, at some session to be held during the course of the present annual meeting, the sum of $2,500, or such part thereof as may be necessary, to defray the expenses of this investigation, including the publication of the report of the committee.

Resolved, That the committee should report within the period of two years, in such form as it may determine, and that it be authorized to publish its report.

Respectfully submitted.

B. A. HINSDALE,
G. P. BROWN,
D. L. KIEHLE,
J. R. PRESTON,
EARL BARNES,
Committee.

At the same time the committee was empowered to enlarge its number to twelve, and to fill any vacancies which might occur.

On the 12th day of July the directors adopted a series of resolutions, under which a sum not exceeding $2,500 was set aside and placed in the emergency fund for the use of the committee. The resolutions also provided that not more than $1,500 should be drawn during the year 1895-96; that no compensation should be allowed any member of the committee, and that the fund may be drawn upon, if necessary, to defray in whole or in part the publication of the report. It is proper to add here that at a meeting of the directors at Buffalo, upon the request of the council, an additional $1,000 was placed in this fund for the use of the committee under the same conditions as above.

The committee held its first meeting July 10, 1895, at which time, on motion of Dr. Hinsdale, the committee was increased from nine to twelve by adding the following persons: W. T. Harris, Washington, D. C.; L. B. Evans, Augusta, Ga.; C. R. Skinner, Albany, N. Y.

Messrs. Sabin, Kiehle, and Hinsdale were constituted a special committee to formulate a plan of work and furnish members with copies of the same; also to divide the committee into sections and to assign appropriate work to each.

The committee as finally constituted consisted of the following gentlemen:

Henry Sabin, Des Moines, Iowa, chairman; B. A. Hinsdale, Ann Arbor, Mich.; D. L. Kiehle, Minneapolis, Minn.; W. T. Harris, Washington, D. C.; A. B. Poland, Trenton, N. J.; C. C. Rounds, Plymouth, N. H.; J. H. Phillips, Birmingham, Ala.; S. T. Black, Sacramento, Cal.; W. S. Sutton, Houston, Tex.; C. R. Skinner, Albany, N. Y.; L. B. Evans, Augusta, Ga.; L. E. Wolfe, Kansas City, Mo.

The special committee of three met in Chicago October 25 and 26, 1895, and, after consultation, divided the entire committee into four subcommittees, and assigned certain topics to each for investigation and report. These subcommittees

were constituted and the work assigned to each in accordance with the following schedules:

I. *School maintenance.*—Subcommittee: B. A. Hinsdale, chairman; W. S. Sutton, S. T. Black.

This branch of the subject was divided for convenience into three subheads:

1. *Revenues.*—Permanent school funds; taxation, general and local, embracing State, county, township, and district taxes; miscellaneous sources of school income, such as fines, licenses, gifts, etc.

2. *Expenditures.*—Machinery and methods of distribution, general and local. The main points to be considered are the channels through which the funds reach the schools and the rules and methods governing their distribution and application.

3. *Organization of business administrative machinery.*—The county, district, and township unit systems; the consolidation of schools; the transportation of pupils; county, township, and district high schools; the relation of rural schools to city schools. Inquiry should be made into the main social, industrial, and economical factors that condition rural education, as density of population, wealth, means of communication, etc.

II. *Supervision.*—Subcommittee: L. B. Evans, chairman; C. R. Skinner, Henry Sabin.

1. The manner of electing the superintendent, State, county, district, or township.

2. Minimum qualifications required of each, and term of office.

3. The relation of the superintendent, State, county, district, or township, to the teachers and pupils as officer and adviser.

4. The relation of the superintendent, State, county, district, or township, to school officers, and their duties.

5. The relation of the State superintendent to the county and township superintendent.

6. The relation of the superintendent to the public at large, as creating and shaping public opinion in rural districts.

7. The relation of the superintendent to school buildings, architecture, sanitation, and hygienic conditions.

III. *Supply of teachers.*—Subcommittee: C. C. Rounds, chairman; J. H. Phillips, D. L. Kiehle.

1. An inquiry into the assistance rendered rural schools by the following facilities for preparation:

(*a*) Normal schools.

(*b*) Training schools in high schools and academies.

(*c*) Summer training schools.

(*d*) Institutes.

2. An inquiry into the means provided for the improvement of teachers already in the service:

(*a*) Teachers' meetings and associations.

(*b*) Reading circles.

(*c*) Libraries and current literature.

3. An inquiry into the manner of electing, employing, and paying teachers:

(*a*) By what authority examined and certificated.

(*b*) By what authority employed.

(*c*) Terms of engagement, certificates, and salaries paid.

IV. *Instruction and discipline.*—Subcommittee: W. T. Harris, chairman; A. B. Poland, L. E. Wolfe.

1. Methods of teaching and government peculiarly affecting rural schools.

2. Courses of study, text-books, and other appliances.

3. Working programmes.

4. Gradation and classification of pupils.

5. The relations of rural schools to their environments; as to farm life, mining life, etc.

It was also provided that the investigation of the several subdivisions of the general subject should follow two main lines:

1. The condition of rural schools now existing.
2. Changes to be recommended; what is, and what should be.

It was not thought necessary that the committee should go into history or development further than to make the conditions that now exist, and the reforms that are recommended, intelligible. It was also recommended that changes to be made, or reforms to be proposed, should have respect to existing facts; that they should be practical in the rational sense of that word.

It was further left to the several subcommittees to determine the methods to be employed in carrying on their work, and to exercise the greatest freedom in enlisting aid from every possible source.

Each subcommittee was thus left free to formulate such questions as seemed best designed to elicit the desired information in the most definite form.

The committee met at Jacksonville, Fla., February 18 and 19, 1896, for consultation and comparison of results. An informal meeting was held during the sessions of the National Educational Association at Buffalo in July, 1896, at which time it was determined to hold a meeting of the full committee at Chicago, November 18 to 21, 1896. The chairman of each subcommittee was also directed to have such preliminary matter ready at that time as would embrace all the essential points necessary to a fair understanding of the scope of the final report to be made to the council in July. It was also voted to ask certain experts in rural school matters to meet with the committee, in order that it might have the benefit of their experience.

The committee met at the Auditorium in Chicago, as determined. The entire committee was present at each session, with the exception of D. L. Kiehle, who, for satisfactory reasons, was not present until Thursday morning. The following gentlemen were present upon invitation of the chairman:

John MacDonald, editor of the Western School Journal, Topeka, Kans.; W. W. Stetson, State superintendent of Maine; J. L. Pickard, of Iowa City, Iowa; O. T. Bright, county superintendent of Cook County, Ill.; Albert G. Lane, city superintendent of Chicago; D. E. McClure, county superintendent of Oceana County, Mich.; W. H. Chandler, of Madison, Wis.; President F. W. Parker, of the Chicago Normal School; G. R. Shawhan, county superintendent of Champaign County, Ill.; John Trainer, of Decatur, Ill.; T. C. Chamberlin, of the University of Chicago; J. J. Schobinger, of Morgan Park, Ill.; W. S. Jackman, of the Chicago Normal School; A. W. Edson, State agent, Boston, Mass.

Wednesday and Thursday were devoted to general discussion, one-half day being allotted to each of the four subcommittees in the following order: School maintenance, supervision, supply of teachers, and instruction and discipline. Friday and Saturday were devoted to the consideration of the preliminary reports submitted by the chairmen of the respective subcommittees. The sessions were held from 9 a. m. to 12 m. and from 3 to 6 p. m. In order to facilitate discussion printed or typewritten copies of the main propositions in each report were placed in the hands of those present. During Friday and Saturday the reports were read section by section, and, after alterations and amendments as suggested by various members of the committee, they were adopted.

It was further ordered that the reports of the different subcommittees should appear in the printed volume in the following order:

1. School maintenance.
2. Supervision.
3. Supply of teachers.
4. Instruction and discipline.

On motion the entire matter of printing the report, when completed, was intrusted to the charge of the chairman of the committee, with the suggestion that he confer with the United States Commissioner of Education in regard to securing the cooperation of the national bureau for publication purposes.

T. C. Chamberlin, of the University of Chicago; W. S. Jackman, of the Chicago Normal School, and F. H. King, of Madison, Wis., were requested to prepare a discussion of the possibilities of a course of study especially adapted to agricultural environments. This discussion constitutes Appendix G of this report.

Appendix A, consisting of a paper read by B. A. Hinsdale before the department of superintendence at Jacksonville, is published by order of the committee. The course of study for rural schools and the paper by Dr. White, designated as Appendix I, and the paper by F. W. Parker, Appendix H, are inserted by the same authority. The other matter in the appendix has been placed there in accordance with a vote of the committee, leaving the selection to the choice of the chairman of each subcommittee and of the general committee.

The date for publication of the report was fixed at from four to six weeks before the meeting of the National Educational Council at Milwaukee. After determining that the chairman of each subcommittee should send a typewritten or printed copy of his report to each member of the committee before publication for suggestions or amendments, the committee adjourned.

In the foregoing historical statement no attempt has been made to follow the exact order of proceedings, but only to gather from the secretary's records such main points as will give the council exact information of the methods adopted by the committee.

As soon as possible after the adjournment of the committee the chairman of each subcommittee prepared his report, and printed or typewritten copies were sent to other members, and also in all cases to persons who were supposed to be able to point out omissions or to suggest alterations. As a result these reports represent the combined experience of many competent persons besides members of the committee. This method led to much correspondence on the part of the chairmen, but it has undoubtedly aided them very materially in making a broader and much more comprehensive report. The committee found itself confronted from the beginning with the fact that the environments of schools differ so much in various sections of the country that it is impossible to make other than very general suggestions. Conditions vary so much between Maine and California, or Minnesota and Texas, that what would be an excellent system in one would possibly fail in the other.

SCHOOL MAINTENANCE.

Those who read the following reports will find that several recommendations are made by more than one subcommittee. Thus in the matter of organization the necessity of adopting a larger unit than the district, as the township or the county, is very strenuously insisted upon by two or more subcommittees. It is a fact of such great importance that other essential points hinge upon this. The arguments are very fully stated in the report of the subcommittee on school maintenance, but the general committee is fully agreed upon the desirability of effecting this change wherever the district system at present prevails. It would conduce to effectiveness and simplicity of organization; to economy in the use and distribution of funds; to the equalization of the burdens of taxation, and to a system of supervision which would produce better results from the instruction given in the rural schools.

Again, all the subcommittees are strongly in favor of the consolidation of schools which are too small to employ profitably the time of one teacher into larger schools, when practicable, in order that better instruction may be provided than is possible under the present system. This involves also paying for the transpor-

tation of pupils to some central school at the public expense. The different subcommittees have reached this conclusion, each from its own standpoint. The inferences drawn from facts and figures are too obvious to need any argument. The conclusions arrived at in the discussion of the two points, organization and consolidation, are very broad, and would seem to be applicable to some section of nearly every State in the Union.

The manner of raising and distributing the revenues has been carefully investigated, and the subcommittee having that subject in charge seems to have reached very wise and just conclusions. The township or special district in which the parents of the pupils reside should contribute to the school funds, as should the county and the State. Every interest concerned in the education of children should bear a proportionate share of the burden of taxation. In the distribution of school funds, because of the community of interests involved in popular education, the strong and wealthy must contribute to the support of schools in weak and impoverished districts. It may not be possible to provide equal school facilities in every part of the State, but every district in which a school is established should be assured beyond all doubt of a sufficient sum of money to employ a competent teacher for the minimum number of months or days fixed by the law. The duty of providing for the pupils of the rural schools the means whereby they can have the benefit of high schools in their neighborhood has not been overlooked. It is not necessary to discuss fully these points. Attention is invited to them, as set forth in the report of the subcommittee on school maintenance.

SUPERVISION.

The subject of school supervision is discussed under the general divisions of State, county, township, and district. The task assigned this subcommittee is difficult, because, as far as rural schools are concerned, there are no well-defined lines of work upon which there is a general agreement. There is great need of supervision which is intelligent and which carries with it some degree of authority. As a general thing, the officer known as State superintendent has only advisory authority. He can make suggestions, but they carry with them no more force than there is in the character and influence of the officer who makes them. He is too far removed from the rural schools, and is too much engaged in other matters connected with his office, to come into close touch with them and their present interests.

No one questions that supervision should be compulsory. In fact, such is the case in most States to-day. The great question connected with it is how to make it effective. A supervisor who has charge of a hundred schools or more, scattered over an entire county, finds it impossible to control and direct them in accordance with well-devised plans. Accordingly the subcommittee urges township or district supervision where it is practicable, or that each supervisor should have such deputies or assistants as will enable him to reach every part of his field.

Again, if supervision is to be effective it must be the product of skill and intelligence. As well put an ordinary seaman, selected from the crew by lot, in charge of an ocean steamer, with its precious cargo of lives and wealth, as to place a raw, uncultivated man or woman, selected by the chances of a political convention, in charge of the schools in which our youth are being trained for citizenship. The subcommittee is of the opinion that certain qualifications, moral and mental, with some experience in teaching, should be exacted from everyone who aspires to the duties of a supervisory office. The duties which are incumbent upon a supervisor of schools have been so minutely discussed that it is not necessary to restate them here. It is sufficient to say that knowledge and skill, enthusiasm and patience, sympathy and forbearance, firmness and justice, are requisite in one who would discharge his duties conscientiously and with due regard to the highest good of all concerned.

The importance of bringing the school into touch with the farm and the home has been dwelt upon at some length. (Appendix O.) To this end the supervisor should make himself thoroughly acquainted with peculiar conditions of life in his supervisory district. It is not enough that he visit the school and consult with the teacher. He must meet school officers and parents, awaken their sympathy and arouse their interest, if he would do his whole duty. He must have a controlling influence in the selection of teachers, in the erection of school buildings, especially as concerns sanitation and hygiene, in teachers' meetings, and in general school work throughout his entire territory.

A wise supervisor can not fail to observe carefully the environments of the school, which exert a powerful, though unconscious, influence upon the character of the pupils. The bearings of the æsthetical upon the ethical side of the child's nature, the relations of music and art as determining the development of the child along right lines, should be observed and guarded as well in the rural as in the city schools.

SUPPLY OF TEACHERS.

The question of the support afforded teachers is one great hindrance in the way of improving the rural school. The following table, showing the average monthly salaries paid teachers in rural schools, has been compiled from answers to circulars sent out to State superintendents. It is unfortunate that in most States the statistics make no distinction between city and rural school teachers. Consequently many of the returns are estimated. They are valuable, however, for purposes of comparison and general information.

States.	Males.	Females.	States.	Males.	Females.
Alabama	$25	$20	Missouri	$40	$31
Arkansas	33	30	Montana	60	45
California *a*	67	56	Nebraska	35	30
Colorado *b*	50	45	Nevada	85	60
Connecticut	30	30	New Hampshire	30	30
Delaware	35	33	New York *d*	37	37
Illinois	30	25	Ohio	35	30
Indiana	40	35	Pennsylvania *e*	42	33
Iowa	35	30	Rhode Island	40	36
Kansas	40	32	South Carolina	30	27
Kentucky	36	34	South Dakota	36	31
Louisiana	40	33	Utah	53	37
Maine	35	22	Vermont	39	27
Maryland	29	29	Virginia	28	25
Massachusetts *c*	32	26	West Virginia	36	36
Michigan	29	25	Wisconsin	46	30
Minnesota	40	31	Wyoming	45	40

a Includes schools of not more than two teachers.
b Includes the schools in the agricultural sections only.
c Based on 52 male teachers and 143 female teachers in towns under $500,000 valuation.
d $9.26 a week, counting thirty-three and one-third weeks in a year.
e Not including the city of Philadelphia.

In connection with above table we must take into account that in only a few States is the average length of the school over eight months. This includes cities and towns, as well as rural districts, so that it is fair to conclude that in general the country teacher finds employment not to exceed seven months in a year, and often not more than five or six.

The subcommittee regrets that so few are able to apprehend the qualities essential to a good teacher. Professional fitness is ignored in nearly every case. The smaller the unit of organization the greater is the disposition to engage teachers for short periods of time. All engagements should be for one year at least, and frequent changes of teachers should be discouraged.

Perhaps the most important subject intrusted to this subcommittee has reference to the training and preparation of teachers. There is no doubt that the normal

school in most States does not reach down and take hold of the common district school. There is room, as indicated in the report, for a series of normal training classes with a course of one year, or at most two years, not modeled after a State normal school, but suited in all respects to the needs of a class of young people from whom we draw nearly all our rural school teachers. Instruction for one year in such a school could be made to so inspire students with a desire for knowledge, to so fill them with the teaching spirit, as to work a most beneficent change in the schools coming under their charge.

The proposition to establish continuous sessions in normal schools, as set forth in the subcommittee's report, is full of promise for the improvement of rural school teachers without withdrawing them from active service. The terms and courses could, under the plan, be so adjusted as to enable them to attend a normal school for work in regular courses of study during that large part of the year not occupied in teaching. A course for one year is indicated below. If extended to two years, the extension should consist not so much in the introduction of new branches as in doing something more than elementary work in the branches already in the curriculum.

Course of study for one year of forty weeks.

General divisions.	First term.	Second term.
Language.	Reading and literature.	Grammar. Elements of rhetoric.
Mathematics.	Arithmetic. Algebra.	Geometry.
Natural and physical science.	Geography. Elements of chemistry.	Botany. Elementary physics.
History.	United States history. Civil government.	General history. Biography.
Professional studies.	School economy. Elementary psychology. Practice teaching.	Physiology with special reference to hygienic conditions. Practice teaching.

The number of lessons in each branch per week must be determined by the conditions and necessities of the class. Singing and drawing should have such a place as their importance demands. At least two lessons per week for each of them should be insisted upon.

The course of study to be completed in one year is arranged according to relation of subjects and not according to order of study. It embraces, so far as elements are concerned, those subjects which are necessary in order to enable a teacher to deal with organic and inorganic nature, with history and civil government, with literature and language, and with so much of music and art as the conditions of the school will admit. While provision is made for professional training, the success of such a course as this as a means for preparing teachers for their work will depend almost entirely upon the good judgment and skill of those who are intrusted with the management of the school. The tendency to overload such a course, to crowd two years' work into one, will have to be very carefully guarded against.

The entire course is intended to be only elementary, and is for the benefit of a large class of teachers who have but little preparation, and are not able from various reasons to devote more than one year's time to attendance upon a normal school. The advantages of a school of this nature would be greatly enlarged by the possession of a carefully selected library, and of sufficient apparatus for purposes of illustration and experiment. If the students could be taught to make this apparatus, with maps, charts, etc., for use in rural schools, it would add to their usefulness as teachers. Very great advantage would accrue to the pupils from coming in contact with disciplined minds in the persons of their instructors. But few rural teachers know how to study or how to get the most out of the books which fall into their hands.

Summer schools, reading circles, and institutes have received their share of attention. The whole ground has been well covered and will repay a careful perusal.

The scheme for the examination and certification of teachers has been thoroughly digested. There will be some who may not agree with the subcommittee in all particulars, but no one will dispute the fact that too many teachers in the rural schools are contented with the lowest grade of certificate which will answer the purpose of the law. There is a great necessity for some scheme such as is here recommended, whereby teachers can rise step by step in their calling, if they earnestly desire to improve. On the other hand, this scheme furnishes a reasonable excuse for not affording further professional recognition of any kind to those who show no disposition or no ability to do anything better in the line of preparation for their work.

INSTRUCTION AND DISCIPLINE.

The report under this head will be found to embrace several important recommendations. Some of these will provoke discussion, but most of them are of such a nature as to commend themselves to every thoughtful person. The report opens a broad field of inquiry, which must of necessity receive more attention as the wants and necessities of rural schools are better considered.

The evils of attempting to grade the rural school as the city school is graded are very clearly set forth, accompanied by the suggestion that those normal schools which as part of their work train teachers for rural schools should carefully impress upon such teachers the necessity of considering the size of the school in determining the uses and abuses of grading and classifying pupils. This suggestion is all the more pertinent in view of the movement in many States to require some previous professional training as a prerequisite for entering any public school as a teacher.

Considering that the course of study for the rural school need not differ in any material point from that provided for the city school, it is urged that the aim of such a course is to enable the pupil to recognize the conditions of inorganic and organic nature, and to pursue the studies of literature, language, and history, as they are necessary for his entrance upon civilization. The difference in courses of study for rural or city schools is found to be in those collateral branches which relate to the environment of the pupil or to the neighborhood in which he dwells. The report upon this point is very full and will repay a careful study of its details. The subcommittee calls especial attention to the relation of the course of study to the system of grading and classification. The suggestions made are of great practical value in any discussion which endeavors to determine the method of adapting a course of study to the wants and conditions of rural schools. It can not but be very helpful to be told that the course of study is the measuring rod used only to determine at what point in his work the pupil has arrived, and not a Procrustean bed used to give the work the lifeless beauty of a dead uniformity.

The consolidation of those schools which have become so reduced in numbers as to render it unprofitable to maintain them separately, the transportation of pupils at public expense to other schools than their own, and the concentration of higher-grade pupils at a central point, are urged as means of lessening many of the evils from which rural schools are suffering. This provision, having been grafted into the law of several States, bids fair to prove of great benefit. Wherever it has been tried it has commended itself as economical and as a means of affording better teachers and consequently better schools. The matter of improved roads enters incidentally into this discussion, as having great bearing upon the question of transporting children to central points for school purposes.

In connection with school exercises at the town or county center once or twice a year, competitive examinations are not recommended unless they are very care-

fully guarded. The feature of social intercourse, the stimulus which comes from meeting with his mates, have advantages which ought not to be overlooked or neglected.

Home reading, with what is termed school extension, is dwelt upon at such length as its prominence demands (Appendix O). To carry good reading material, whether of science, literature, or fiction, prose or poetry, into the schools and homes of the rural districts must be a part of any educational scheme which has for its object making country life more endurable or more attractive. The various recommendations of this part of the report are worthy of careful consideration at the hands of those even who may not wholly agree with them.

CONCLUSION.

Your committee has called in the aid of a number of persons whose time and thought have been largely given to matters connected with the management and instruction best suited to the wants of rural schools. It was found impossible to embrace the entire matter placed at our disposal in the body of the report. We have, therefore, printed much of it in the form of an appendix, believing that it will add largely to the value of this report. It is not to be supposed that every point has been covered, or that the entire subject has been exhausted. The committee has endeavored diligently and to the best of its ability to throw some light upon what may possibly be regarded as a collection of subjects embracing a very large field. While there are many points worthy of especial attention, I have gathered up the following as a brief summary of those which may be considered of most pressing importance:

SUMMARY.

1. For purposes of organization, maintenance, or supervision, nothing should be recognized as the unit smaller than the township or the county; the school district is the most undesirable unit possible.

2. Every community should be required to raise a certain sum for the support of its schools as a prerequisite for receiving its share of public money. A certain definite sum should be appropriated to each school out of the State funds, and the remainder should be divided in accordance with some fixed and established rule, a discrimination being made in favor of townships most willing to tax themselves for school purposes.

3. One of the great hindrances to the improvement of the rural school lies in its isolation, and its inability to furnish to the pupil that stimulative influence which comes from contact with others of his own age and advancement. The committee, therefore, recommends collecting pupils from small schools into larger and paying from the public funds for their transportation, believing that in this way better teachers can be provided, more rational methods of instruction adopted, and at the same time the expense of the schools can be materially lessened.

4. There is a tendency to fill the rural schools with untrained, immature teachers. The establishment of normal training schools, under competent instructors, with short courses, each year of which shall be complete in itself, would do much to remedy this evil. The extension and adjustment of the courses and terms of the State normal schools so as to constitute a continuous session would enable them to contribute more directly than now to the improvement of the teachers of rural schools (Appendix S). The State would then be justified in demanding some degree of professional training from every teacher in the rural as well as in the city schools.

5. The establishment of libraries, the prosecution of the work of school extension by lectures and other means, the introduction of such studies as will have a tendency to connect the school and the home, especially those having a direct bearing upon the everyday life of the community, and the necessity of applying the laws of sanitation to the construction of rural schoolhouses demand immediate attention.

6. The rural schools are suffering from the want of official and intelligent supervision. In every State some standard of qualifications, moral and intellectual with some amount of actual experience, should be demanded by law from those who aspire to fill the office of superintendent or supervisor of schools.

7. Good morals and good manners constitute an essential part of an educational equipment. The inculcation of patriotism, of respect for law and order, of whatever tends to make a good citizen, is of as much importance in a small as in a larger school. Regularity, punctuality, obedience, industry, self-control, are as necessary in the country as in the city school. Country school teachers should call to their aid the beautiful things in nature, that with reverential spirit they may lead the children to reverence Him who hath made all things good in their season.

HENRY SABIN, *Chairman.*

REPORT OF SUBCOMMITTEE ON SCHOOL MAINTENANCE.

The maintenance of an efficient State system of public instruction involves numerous sociological factors of an important character. This is particularly true in a democratic State, where public opinion gives the final sanction to all public activities. Moreover, there is good reason to think that it is even more important to consider such factors carefully when providing rural schools than when providing urban schools. The bearing of the wealth of the State, both in the aggregate and in relation to population; the density of population and the ratio of rural to urban population; the ratio of the adult or wealth-producing population to the population of legal school age; the facilities for travel and the character of the people in respect to race elements—the value of such factors as these in the problem is almost too plain for argument. (Appendix A.)

The organization and administration of the powers of government must also be considered. The Government of the United States stands to all the members of the Union in the same relation—that is, within the States it has no proper educational function whatever. The State government, however, is a constant factor; it exercises the central State authority. But when we take the next step we are at once confronted by contradiction and confusion.

First, we find in New England the town system of local government. Here nearly all the local governmental functions are performed by the town; the county exists, but it is more a judicial than a political unit, and in Rhode Island it is wholly judicial. The town is much, the county little. Secondly, the county system, which exists throughout the South and in several of the Western States, more than reverses these conditions. The county is the organ of local government, and the township does not commonly exist. The county is divided into districts for the purpose of defining the jurisdiction of justices of the peace, into election precincts, and sometimes into school townships. Here the county is everything, the town nothing. Thirdly, the old Middle States and most of the Western States have what is called the mixed or compromise system. In these States the township is less than in New England and the county more, the county less than in the South and the township more; in other words, both township and county are employed in something like equal measure. Again, two types of the mixed system are found in different States. In New York and the States that have imitated her the county legislative and executive board is composed of supervisors elected by the several townships, while in Pennsylvania and the States that have followed her example this board is composed of commissioners elected by the county at large. The county is, therefore, a governmental organ in all the States, while the township is found only in two groups of States. Moreover, in those States where the town or township is found it varies considerably in powers in comparison with the county. These elementary governmental facts it is necessary to remember, because they directly affect the matter in hand. Manifestly, the people will not be apt to create local organs of government for any one single pur-

pose unless they deem it absolutely necessary. On the other hand, they will manifestly use for any such purpose, as far as consistent, the same organs that they use for other local purposes. This is just as true of schools and education as of other public interests. Except that Vermont has a county examiner of teachers, no mention is made of the county in any New England school law;[1] no mention is made of the town or township in any Southern State, while the States that have the compromise system use both the county and the township as organs for carrying on their schools. It will be seen that no account is here taken of the city or municipality, because this is common to all the States and does not relate to rural schools.

An ambiguity in the use of the term *town* is also to be mentioned. The *township* of the Middle and Western States corresponds in general to the New England *town*, while in these States the *town* is a village, hamlet, or even city. All the recommendations made in this report will recognize distinctly the facts now stated.

Still another preliminary explanation is called for. The term *district* as used in school legislation and in educational discussions is very misleading. The two leading senses of the word must be sharply discriminated. This can be done by describing the two principal forms of local school organization.

1. *The town or township unit system.*—This is something wholly different or separate from the town system of local government described above. The two systems may exist together, but not of necessity so. The town or township unit system, called also the town-district system, is found in connection with both the town and the compromise systems of local government. It could not exist with the county system, as a matter of course. The town system of local government relates to local affairs generally; the town or township district system to schools only. The name township-unit system means only that the town or township is the ultimate unit of school organization and administration. This unit, with such assistance as it receives from the State or county, provides and carries on its own schools independent of any other unit. It raises funds by taxation and expends them, subject only to the law of the State. It is the organized town or township, a body corporate and politic, under its educational aspect. The local authority is sometimes a school committee, as in Massachusetts; sometimes a board of education, as in Ohio, and again a township trustee, as in Indiana. Again, the township-unit system does not necessarily involve the consolidation of rural schools. The school children within the unit may all be brought together in one central school at some advantageous point, or they may attend a plurality of schools scattered through the township. In the second case, the limits or boundaries of the several schools must be marked off for the regulation of school attendance, unless, indeed, pupils are permitted to attend such schools as they please, and these areas are commonly called districts or school districts. In Ohio they are known as subdistricts, and they serve also as units of representation in the township board.[2] Here, then, are two clear uses of the term "district"—one is the town or township, and the other a part of the town or township defined pri-

[1] Vermont, Maine, and New Hampshire once enacted laws creating the county superintendency, but these laws did not remain long on the statute books. No State is likely to use the county for an administrative school purpose unless it uses it for other administrative purposes.

[2] The explanation of the Ohio law on this point is historical. Previous to 1892 the township was the school district proper, but this was divided into subdistricts. The township board of education raised all the local funds by a tax levied on the taxable property of the township and apportioned them among the subdistricts. The subdistrict boards of directors employed the teachers and carried on the schools. The voters of the subdistrict, in annual school meeting, elected the three directors, one every year, for three years, and these again elected one of their number clerk, who represented his subdistrict in the township board. Under the Workman law of 1892 all the old powers of the directors were transferred to the township board, but the subdistrict was left for the regulation of school attendance and to serve as a unit of representation in the township board.

marily for the regulation of school attendance, but also sometimes serving as a unit of representation.

2. *The district system.*—Here "district" is used in quite another sense. Geographically the school district is now commonly a subdivision of a town, as in Connecticut, or of a township, as in Michigan, or of a county, as in the county-system States. Ordinarily it is a body politic and corporate, and is the ultimate unit of school organization and administration. It has its own school committee or board, elected by the voters of the district in school meeting, and, with such help as it receives from the State or county, it builds its own schoolhouse and provides and carries on its own school or schools. It is, therefore, a taxing as well as an administrative unit. Under this system the district is the controlling factor of school organization. Not only is it the most democratic form of school organization, but it has been called "probably the most communistic as well as democratic feature of our political institutions, and is certainly the smallest minor civil division of our system."[1]

Still other districts are mentioned in the laws and reports, as special districts, city districts, borough districts, joint districts, and the like; but these names do not present any new features of an essential character.

These explanations premised, the subcommittee will divide this report into three grand divisions, viz, revenue, distribution, and organization. The last topic, however, will be considered only so far as relates to school maintenance. By school maintenance is meant the provision and support of public schools.

REVENUE.

The subcommittee submits that the first essential to the material improvement of the rural schools of the country is the provision of revenue sufficient for their adequate support. Accordingly this is the first subject to be considered.

The educational items in the budgets of all progressive countries have assumed great proportions and are all the time growing. The Commissioner of Education reports the expenditure for common schools in the States of our Union for the year 1894-95, not including payments on bonds, at $178,215,556. Seven States expended more than $5,000,000 and less than $10,000,000 each, and five more than $10,000,000 and less than $20,000,000 each. New York alone stood above $20,000,000. In 1888-89 the total for the country was $132,129,000, and in 1883-84 only $103,909,528. But unfortunately we have no statistics showing the division of these vast sums between the rural districts and the towns and cities.

A city, in the dictionary of the National Census Office, is a concentration of population containing 8,000 people or more of all ages, and in 1890 there were 443 cities in the country. The Commissioner of Education reports for the year 1893-94 that 3,126,659 children were enrolled in the schools of these cities, to 10,809,318 enrolled in other schools. He reports further that the maintenance of the city schools cost $69,886,413, and of the others $100,497,760. But this is no proper division of rural and urban schools, since the educational conditions existing in many centers of population containing less than 8,000 people are the same as those existing in the 443 cities. At present it costs much more to school 1,000, 10,000, or 100,000 children in the cities than in the country, but this is mainly due to the fact that the education furnished is so much greater in quantity and so much better in quality. It is not improbable that if rural schools were brought as near as possible to the level of urban schools, they would be quite as costly. At least, it is evident that the first condition of good rural schools is a sufficiency of funds with which to provide and maintain them. How shall these funds be provided?

[1] Mr. Wellford Addis, specialist in the Bureau of Education. See Chapter XXXIV of the Report for 1894-95, "The Social Unit in the Public School System of the United States."

I. A century ago the American people began to take an interest in the creation of permanent school funds or endowments. This interest was originally stimulated, if not created, by the policy that Congress foreshadowed in 1785, and subsequently firmly established, to endow the common schools in the public-land States with liberal grants of public lands. In every State in which Congress has exploited the wild lands either one-thirty-sixth or one-eighteenth part of such lands has been dedicated to the public schools. Beginning with Connecticut in 1795, nearly all the nonpublic-land States have also created such endowments out of their own resources. Several of them devoted the United States deposit fund of 1837 to this purpose. At the beginning of the century no one dreamed to what proportions public education would grow in one hundred years; and men thought, not unnaturally, that permanent endowments would greatly ease the burden of taxation for school purposes, and would keep the educational machinery of the State constantly running and well regulated. It will not be denied that, relatively, these funds have come far short of meeting the expectations of those who laid their foundations. There can be little doubt that in many of the States, and particularly when such States were new and poor, they have hastened educational development; but it is quite certain that they have often done great harm, causing the people to rely upon the feeble income derived from them, and to turn their faces away from the only adequate source of school maintenance—that is, public taxation.

Texas has been gazetted as having the most magnificent possibilities of any State in the way of a permanent school fund, but some citizens of that State are now questioning whether these possibilities may not prove other than an unmixed blessing (Appendix B). The fact is, public schools in the United States have far outgrown all present or prospective endowments. In 1888–89 the income from such funds was $9,825,000 in a total of $132,125,111; in 1894–95 the corresponding figures were $8,336,612 and $177,597,691; that is, the per cent fell from 7.4 to 4.7 in six years. New York and Ohio derive less than $300,000 each of their great school revenues from permanent funds, and Pennsylvania derives nothing from such a source. In fact, it would require a permanent fund of $400,000,000 to carry on, at the present scale of expenditure, the common schools of either New York or Pennsylvania. The subcommittee submits, therefore, that all permanent school funds, either State or local, should be carefully husbanded and wisely administered; that they should be preserved intact, and the income be scrupulously applied to the support of schools; that, under special conditions, it may be wise to augment old funds or create new ones, as when certain miscellaneous revenues can be devoted to that purpose; but that such funds must necessarily play a constantly diminishing part in popular education. Massachusetts is committed to the policy of adding to her fund $100,000 a year, raised by taxation, until a total of $5,000,000 shall be reached, and New Jersey to the policy of similarly dedicating the proceeds of certain riparian rights that belong to the State; and to this there is no objection; but for these States, or any others, to lean heavily upon such funds for school maintenance would be a most fatuous policy. Public education is, or at least should be, a recognized function or service of the State. The public schools of the country are civil schools, created and carried on by the civic authority, and they must rest ultimately upon the same general means of support as the other functions or services of government. As well, therefore, endow any other branch or function of the State government, such as the asylums and hospitals, the judiciary, the civil service, or the militia, as the State schools.

II. Gifts to popular education should be sedulously encouraged. Education has long been a favorite object with public benefactors, as the annals of every progressive country show, and none more convincingly than our own. No doubt when the public mind is aroused to the advantages of popular education, and school taxes are abundant, such persons who choose an educational object for their

beneficence will rather be inclined to seek some other form or kind of education. Still the constitution or laws of nearly every State, if not indeed every one, provide for the acceptance and use of private gifts for school purposes, and there are generous persons who are peculiarly interested in the common schools. Scattered over the country are many local public-school endowments that had a private origin, and such gifts have not come to an end.

The subcommittee is not aware that there are any statistics showing how far private benevolence contributes to public education, but it is apprised that the contribution is by no means contemptible, and it believes that it might be made considerably larger than it is. The favorite forms of such contributions under existing conditions are most likely to be land for building sites and apparatus and libraries for schools, and the subcommittee is of the firm opinion that much more could be done than at present in all these directions, and particularly in the way of procuring apparatus and books for the schools in communities where the public funds that are available for these purposes are meager or insufficient.

III. The great resource of the public school is, and must continue to be, some form or forms of public taxation. The ratio of the total school revenues derived from taxes to those derived from permanent funds is all the time growing, and it will continue to grow. At two periods, separated by six years, the sources of the common-school revenues expressed in per cents were as follows:

Year.	Taxes.	Permanent funds.	Other sources.
1888–89	85.9	7.4	6.7
1894–95	85.7	4.7	9.6

Manifestly such areas or units of taxation should be created, or continued if already in existence, as will fully develop the sound American principle that the whole wealth of the State shall be made available for educating all the youth of the State. This is both right and necessary, for it must be remembered that in the United States education is a civil or State function to be supported like other similar functions. What shall these units of taxation be? The subcommittee names those following as coming under the principle just stated:

1. *The State.*—A liberal provision of funds from the State treasury, to be distributed according to some rational method, is indispensable, as a rule, to the maintenance of a good system of State schools. Formerly the burden was mainly or wholly thrown upon the local units. The old Massachusetts plan was to throw upon the towns the whole burden of maintaining their own schools. But the greatly increased cost of schools, growing out of enhanced salaries, longer terms, and improved material equipment, long ago demonstrated that this plan must be materially modified. Many local taxing units are too poor to carry such a load and they must either abandon all hope of good schools or they must receive assistance from the State or social whole. The fact began to gain recognition as early as the middle of the century.

When the constitution of Ohio, adopted in 1851, provided that the legislature should make such provisions, by taxation or otherwise, as, with the interest arising from the permanent school fund, would secure a thorough and efficient system of common schools throughout the State, the law-making power hastened to levy upon all the property of the State, as rated by the assessors, a State school tax of 2 mills on the dollar, to be distributed on the basis of the school enumeration. Taking the country together, the cost of public education is divided between two or more taxing units. Still the fact remains that the part which falls to the local unit is often disproportionate. In 1888–89 the per cent of the total amount of school revenues raised by local taxation was 66.8 to 19.1 per cent raised by State taxation. In 1894–95 the corresponding per cents were 67 and 18.7. The ratio of

the two elements is variable in different divisions of the Union and in different States of the same division. The per cents raised by State tax, as reported, range all the way from zero to a maximum of 83.2, found in North Carolina. We should naturally expect the Southern States, since local government is there less fully developed than at the North, to rely relatively much less on local taxation and much more on State taxation, and such is the fact. But political habit is not the only factor that enters into the problem; economical conditions also assert themselves In a State where wealth abounds and is somewhat evenly distributed throughout its limits, as where manufacturing and commercial towns are frequent, there is not the same necessity for the State, as a unit, to assume a large proportion of the whole burden that there is in a State where wealth is meager, and where such wealth as exists is largely found in a few concentrations of population, leaving large areas thinly populated and poor. These remarks will throw light on the per cents of school moneys raised by State taxation and local taxation in the five divisions of States that the Census Office recognizes. The date is 1894–95. (See also Appendix B.) No account is here taken of income from other sources than taxation.

Division.	State taxes.	Local taxes.
	Per ct.	*Per ct.*
North Atlantic States	19.4	68.2
South Atlantic States	38.1	51.3
South Central States	48.4	31.7
North Central States	9.9	75.4
Western Division	23	61.3

In some of the States, as will be shown hereafter, local taxation must be more fully developed than in the past or present; in others, and these principal States, too, the same may be said of State taxation.

2. In all States where, for other local purposes, the county is the sole unit of taxation, a liberal county tax should be levied for the schools. This proposition applies especially to those States where the county system of local government prevails In States where, for such purposes, the county is a large unit of taxation, it may be wise to levy a county school tax: that circumstances must determine. This remark applies to the States having the mixed system of local government. Under the town system county taxation for schools would be out of harmony with the social and political traditions of the people, and could be accomplished only through a change of habit; perhaps this end is attainable. For the year 1894–95 the Commissioner of Education shows that 67 per cent of the total school revenues of the country came from local taxes. The scale ran from 1.7 per cent in North Carolina to 98.2 in Massachusetts. Unfortunately we have no statistics showing from what sources the local taxes come; how much from districts, towns, and counties, respectively. The point must, however, be strongly pressed that local supply for public education should be forthcoming, as well as State supply. It is a great mistake to teach the people to look altogether, or mainly, to the State treasury for school maintenance. They should rather be taught to depend in due measure upon themselves. It is the confident opinion of the subcommittee that some States are now committing this mistake. Many States having the county system of local government have in the counties a resource for school maintenance upon which they have never adequately drawn.

3. In those States where the town or township is a large taxing unit for other local purposes it should also be made to contribute liberally to public education. This recommendation it would be idle to urge in most of the Southern and in some of the Western States, because the civil town or township does not exist, and it would be vain to urge its creation for school purposes exclusively. But in

those States where the town and mixed systems of local government exist a township school tax would be congruous with the general social and political habits of the people. The desirability of local taxation for school purposes was urged under the last head. Such taxation develops self-reliance and local character, and tends to awaken and keep alive the interest of the people in the schools. The town was the sole school taxing unit in old New England, and it is still a prominent, sometimes almost an exclusive, one throughout the Northern States. The local school taxes of New England are town and district taxes, and taken together they range from the minimum of 69.2 per cent of the whole in Maine to 98.3 in Massachusetts. It can hardly be doubted that the New England States, as well as some others, now throw the burden too heavily upon the towns and districts, and that they will find it advantageous considerably to raise the ratio which State taxation bears to local taxation. The other New England States will probably follow, sooner or later, the example of Maine, which raises nearly one-third of her school money by State taxation. In some States, no doubt, the townships should carry a heavier weight than at present, at least as compared with districts. At all events, the township should bear a reasonable part of the cost of its own education.

4. Special districts, as incorporated villages, towns, and cities, the subcommittee considers not only proper but necessary units of school taxation. Such districts are the concentrations, large or small, of population and wealth; they are the industrial and social centers of the country. We have already seen that in 1893–94 $69,886,413 was expended for school purposes in the 443 cities of the Union. In Massachusetts $7,088,000 was expended in cities; in New York, $12,723,000; in Pennsylvania, $7,745,000; in Ohio, $5,097,000; in Illinois, $8,110,000. If we had the figures for the smaller cities and the incorporated towns, the aggregate would be much increased. Now, not only do the cities, taken together, raise by taxation nearly all of the school money that is expended in them, but, as will be shown in another place, many of them contribute largely to the support of rural schools. Again, they must in the future, collectively as before, contribute still more largely to this end. Special districts, then, are essential as taxing units, care being taken to secure approximately a fair distribution of the public burdens. As a rule, dwellers in cities are much better able to pay heavy taxes than dwellers in the country, but there is great reason to fear that they do not always do so.

The school district, in the commonly accepted sense of that term, is not a desirable taxing unit, but the contrary. It is now such a unit in a majority of States, and the subcommittee is decidedly of the opinion that it should either be made much less prominent than it is or be abolished altogether. As a rule, the second course is to be preferred (except in special districts already mentioned). The town or township is the smallest area that should be employed for this purpose. Even this may be overweighted, as can easily be shown. The unanswerable objections to district taxation are the inequality in burdens that results, and the inability of many districts to carry the load that good schools would necessarily impose upon them. A few statistics will make both propositions perfectly clear.

In 1871 Superintendent Fallows, of Wisconsin, published a table showing the amount of property assessed per scholar in the school districts of a certain township, which he believed to be a type of the state of things generally existing throughout that State. The maximum was $2,860; the minimum, $784; the average, $1,378.

In 1878 Superintendent Graham, of the same State, published a table for the whole State, showing that the valuation of property per district varied from $2,300 to $1,979,708. Districts with less than $3,000 and districts with $40,000 were found in the same township. But the poor districts were required by law to maintain a school six months in the year, just as the rich ones were. The ratio of district taxation ranged from half a mill to 55 mills on the dollar. Superintendent Wells,

of Wisconsin, published similar facts in 1893 for a number of States. He showed that in Rhode Island some districts were taxed fourteen times as heavily as others, and in Connecticut a similar disproportion existed. In New York the ratio of tax raised in two counties varied from 0.0012 per cent in one district to 0.0431 in another. One township presented the extremes, 0.0009 and 0.0070, and still another one 0.0048 and 0.0371. Two districts in one township paid respectively $5.66 and $58.11 per capita; two in another one, $5.43 and $60.37; two in a third, $11.25 and $181.85. "That is to say," says Mr. Wells, "the rate of taxation is seven times as great in one district as in another in the same town, and the per capita cost of educating a child is eleven times as great."[1] But the first of these New York comparisons presents a ratio of almost 40 to 1.

Statistics such as these could be collected almost without limit. The most instructive way to study the subject is, so to speak, on the ground. If a man unfamiliar with it, who lives under the independent district system, will only take the trouble to collect the facts relating to his own county he may easily be astonished at the result. And yet, as a rule, the law lays upon the districts, rich and poor alike, the same burdens in respect to school maintenance. It is hard to see how or why the people have so long borne such inequalities—inequalities so contrary to the cherished American principle that the property of the State should educate the youth of the State; or, rather, it would be hard to see why they have borne them if we did not know the extent of the public ignorance on the subject and the strength of conservative habit, and did not see also how the district as a taxing unit is bound up in men's minds with the district as a unit of administration. But the two are not inseparable. The legislature of Ohio abolished the district as a taxing unit twenty-five years or more before it abolished the district as an administrative unit. In Connecticut, too, town taxes and district management are both met with in the same towns.

Before dismissing units of school taxation, a single point calls for closer attention. This is raised by the question, What is the advantage of looking to large units for supply rather than small ones?

The answer to this question rests upon the fundamental assumption that public education is a State function, and that the whole State is responsible for the education of all the youth of the State. Now, if the cost of public education bore the same ratio to the ability of the people to bear this cost in all the communities of the State, or, what is nearly the same thing, if the wealth per capita of all the communities were equal, then, as a matter of course, it would make no difference whether the school tax were levied upon large areas or small ones. But this is far from being the case. The cities are indeed concentrations of both absolute population and school population, as well as of wealth; but their wealth tends to increase much more rapidly than either the absolute or the school population. The fortunes of the country are either made in the cities or else tend to flow into the cities. The last report of the Census Office shows the per capita wealth of the Union, of the States severally, and of the five groups of States, but it does not show the per capita wealth of the cities and of the rural districts separately. The nearest approach to it is the tables showing the per capita value of real estate with improvements, by States and counties. These averages throw important light upon the subject, and some examples will be given.

Illinois: State average, $860.88; highest county average, $1,311.90; lowest county average, $164.64.

Massachusetts: State average, $848.01; highest county average, $1,564.10; lowest county average, $466.65.

New York: State average, $969.66; highest county average, $1,733.35; lowest county average, $305.80.

[1] "Township System of School Government." Madison, Wis., 1894.

Ohio: State average, $689.01; highest county average, $1,562.56; lowest county average, $265.99.

Pennsylvania: State average, $719.13; highest county average, $1,049.88; lowest county average, $187.26.

If personal property were included, the extremes per capita would be still more widely separated than they are at present. Formal argument is not needed to show that the rich counties are much more able to contribute to the expense of government, education included, than the poor ones, and the proposition that a due proportion of such expense should be thrown upon these units rests upon this fact. The tendency would be to remove inequalities in bearing the common burden. Levying the local school tax upon the township instead of the districts that compose it, or upon the county instead of the townships, would work in this direction. It is very true that townships are unequal in per capita wealth as well as districts, and counties as well as townships; still the fact remains that large units are less unequal than small ones. Every step toward the highest taxing unit tends to distribute the burden more equally. In fact, the argument for removing a portion of the burden from the small taxing units to the large ones is the same that justifies us in calling upon society to educate individuals or families that are too poor to provide for their own education. Why do we impose a public tax for educational purposes at all? Simply because education is a common interest, while some individuals or families are unable to educate themselves.

It may be said that the line of reasoning which has been followed would lead to placing the whole burden of State education at the door of the State treasury. Why should not the State defray the cost of the common schools, just as it defrays the cost of the reform schools for boys and girls, and of the asylums and hospitals? It must be confessed that this would be strict logic. However, we are to remember that governments are never carried on according to strict logic, and can not be from the very nature of the case. What is more, there are the best of reasons, as shown above, for making education, to a reasonable degree, a local charge—reasons that do not apply to some other public services. The people are more likely to be vitally interested in the schools if a portion of their cost is derived from local taxes. In no country of the world, so far as the subcommittee is aware, is elementary education made an exclusive general charge. It is not desirable that it should be. The present contention is for a reasonable distribution among the several taxing units. At the same time, it may be worth observing that in some countries there is a strong tendency, as in England and France, to rely more than formerly upon general rather than local supply.

The appropriations for schools that States make from the common treasury differ greatly in form as well as in amount. Massachusetts levies no State school tax, but the legislature nevertheless votes various specific appropriations, as for the salaries and expenses of State agents, aid to pupils of normal schools, compensation of local superintendents, the payment of high-school tuition for pupils living in towns whose valuation of property does not exceed $500,000 and that do not maintain a high school. Connecticut raises annually a State school tax equal in amount to $1.50 multiplied by the number of persons in the State between the ages of 4 and 16, as enumerated annually. Rhode Island, while not levying a State school tax, so called, votes enough money out of the State treasury each year to make, with the income of the permanent fund, a total of $120,000. New York raises annually, by taxation based on the real and personal property of the State, such sum for the support of schools as the legislature shall determine. New Jersey assesses and collects a total State tax amounting to $5 for each person in the State between the ages of 5 and 18 years. It is this tax that places New Jersey at the head of the column of Northern States in respect to the per cent of school revenue derived from a State tax. The constitution of Pennsylvania provides that

the State legislature shall appropriate every year $1,000,000 from the State treasury for the use of schools, but the present appropriation is $5,500,000.

Ohio levies a tax of 1 mill on the dollar of the grand tax duplicate of the State. Indiana raises 11 cents and Kentucky 22 cents on each $100 of taxable property. The Michigan law directs the supervisor of every township to levy a school tax of 1 mill on the dollar for schools within the township, but as the proceeds are kept within the districts where they are raised, this is only a compulsory local tax; still it stimulates further local taxation for the grand object. The legislature of Michigan also levies a specific tax on certain corporations, as railroads, etc., which is first applied to the payment of interest on the various educational funds that the State has borrowed, as the university, agricultural college, and common-school funds, and then to the support of the common schools. Nebraska makes an annual levy and assessment not exceeding 1½ mills on each dollar's valuation on the grand list of taxable property. The California system of school finance will be mentioned under distribution and in an appendix. These are a few of the States; still others will be dealt with in connection with distribution.

The basis of school taxation, or the ultimate sources of school supply, is an important subject. Whether more money can be had for the schools often depends upon the manner in which it is proposed to levy the tax. In general, taxation for schools will conform more or less closely to the character of the State taxing system as a whole. While admitting the great importance of the subject, the subcommittee does not feel called upon to discuss beyond offering brief remarks on two or three points.

Pennsylvania meets her annual State school appropriation, in whole or part, by laying a tax of 4 mills on the dollar on all moneys loaned by citizens of the State. Some States levy poll taxes, and some "occupation" taxes, for their schools. Quite miscellaneous sources of school revenue are met with in the State constitutions and laws. We find specific taxes on dogs, and on banks, railroads, and other corporations. Escheats and forfeitures are often, or commonly, devoted to the schools. The constitution of Nebraska prescribes that all fines, penalties, and licenses arising under the general laws of the State shall belong and be paid over to the counties where such fines, etc., may be levied or imposed; also that all fines, penalties, and licenses arising under the rules, by-laws, or ordinances of cities, villages, towns, precincts, or other municipal divisions less than a county shall be paid over to the same, respectively; and further, that all these moneys shall be appropriated exclusively to the use and support of common schools in the respective divisions where the same may accrue. Nor is Nebraska peculiar in so dedicating such funds. It has been suggested to the subcommittee that an inheritance tax would prove a popular as well as an abundant source of school supply.

DISTRIBUTION.

The subject of distribution is only less important than that of income. It is easy so to distribute school funds as, first, either to defeat, in whole or part, the very end sought in taxing the larger units for the benefit of the small ones; or secondly, materially to weaken local enterprise and liberality, or wholly to destroy it. The subject will be considered under both these aspects.

1. The assistance that the large political and social units render to the small ones, as the State to counties, townships, and districts; or the county to townships and districts; or the township to districts, should be made contingent, in part at least, upon what the small units do for themselves. No community, it is believed, is so poor that it can not do something toward educating its youth. Again, a State educational system should be so organized and administered as to stimulate, and not repress, local spirit and effort. It is a great mistake to remove the burdens of public education so far from the people that they forget, or tend to forget, their existence. The principle here involved is a vital one. History shows con-

clusively that popular education has flourished most in those States of our Union where government is most democratic.

It is difficult, or rather impossible, to lay down a general rule that shall govern the division of taxation between the State and the local communities. Two things are to be considered. One is the political institutions that exist in the State. If government is largely centralized at State capitals and county seats, that is one thing; if it is largely decentralized, as where the principle of local self-government is fully developed, that is quite another. For example, it would be idle to expect that the same results would obtain in the Southern States that are found in New England, or even in that great group of States where the mixed system of local government prevails. The governmental machinery and the traditions of the people will assert themselves in such matters. The other factors to be considered are social, and particularly economical, conditions. As remarked early in this report, where wealth is abundant and its distribution general and somewhat equal in different communities school burdens may be thrown, and should be thrown, much more heavily upon localities than where the opposite conditions prevail. Density of population, relation of urban to rural population, average wealth per capita, ratio of wealth-producing population to the population of legal school age, the expenditure for education per pupil and per capita, and the per cent of school revenue derived from State taxes and local taxes in the different States, are peculiarly interesting when studied together (Appendix A).

North Carolina shows the largest per cent of State school tax (that is, of the whole tax) of any State in the Union, while the average population per square mile and the average wealth per capita are also small. Maine surpasses all the other New England States in these particulars. The proportionally high ratio of State taxation in the South is due to the two facts stated—political institutions and economical conditions. But there can be no manner of doubt that, as the cities of the South grow, towns multiply, and concentrations of population increase in number and in the value of property, local school taxation will materially increase. Legislatures could hardly prevent it if they should try, and it would be most unwise for them to try to do so.

2. Funds raised by the large taxing units should be distributed in such a manner as to bring the support of the rich and strong to the poor and weak. The only reason for taxing these units at all for general purposes is to secure this end. On no other principle can a State school tax, or even a county or township tax, be defended, unless, indeed, the county or township is a single school district. The practical question is, How shall such funds be distributed so as not to defeat the end in view? A historical account of the leading methods actually pursued will help on the inquiry.

The public-land States may be divided into two classes. From the admission of Ohio to that of Arkansas (1803–1836) Congress gave to the Congressional townships of such States, severally, 640 acres of land each for the perpetual use of schools, and vested the title in the State legislatures. Accordingly in these States every township has its own independent permanent school fund,[1] which is sometimes managed by local authorities and is sometimes in the keeping of the State. Generally speaking, the sum of the township funds makes the so-called State school fund, so far as it is derived from public lands. If the township-unit system prevails, the ultimate distribution of income has been made in advance; if the district system, then the township distributes to the districts. From the admission of Michigan to that of Utah (1837–1895) Congress gave the common-school lands to the States as units rather than to townships, which resulted in the establishment of consolidated State school funds. The annual income from these funds, so far as the subcommittee is informed, is uniformly distributed to the local school

[1] Ohio and possibly other States offer some minor exceptions.

organizations on the basis of the youth of legal school age as enumerated every year. The ages vary, but the principle does not change. It should be added that since the admission of California (1850) 1,280 acres of common-school lands have been given to every Congressional township.

The rule of apportionment just explained is followed far more generally than any other. Thus, Maine distributes her State funds, from whatever source derived, to the towns according to the number of children between the ages of 4 and 21. Connecticut distributes the annual income of her permanent fund and the proceeds of the tax of $1.50 for every child between the ages of 4 and 16 according to the number of children between those ages. Pennsylvania apportions her State tax of $5,500,000 annually, Ohio the proceeds of her 1-mill tax, Michigan so much of her specific tax as goes to schools, and Indiana and Kentucky the proceeds of their State school taxes according to the same general rule.

But other rules are followed. Vermont apportions her State tax to the towns, cities, and unorganized districts according to the number of legal schools maintained during the preceding school year. New Hampshire distributes her State funds to the towns according to the number of pupils returned as attending school not less than two weeks in the year. So much of the Massachusetts permanent fund as goes directly to the schools is apportioned to the towns of the State that have a property valuation of less than $3,000,000, towns ranking above that line receiving nothing. Furthermore, the scale is so adjusted that the poorer the town the larger the amount that it receives. Towns whose valuation does not exceed $500,000 receive $275 each; those exceeding $500,000 and not exceeding $1,000,000 receive $200; those exceeding $1,000,000 and not exceeding $2,000,000, $100, and those above the last amount and not above $3,000,000, $50. Again, a portion of the State fund is divided among the towns that are eligible on the basis of the ratio that the town's school tax bears to the whole town tax; the larger the ratio the more help it receives. Rhode Island distributes her annual State contribution of $120,000 as follows: First, $100 is assigned to every school, not exceeding 15 in number, in a township; then the remainder is distributed to the towns proportionally to the number of children from 5 to 15 years of age inclusive.

The State school moneys of New York are apportioned in a complicated manner. The State superintendent first sets aside the annual salaries of the school commissioners (district superintendents). Next he sets apart to every city, incorporated village having a population of 5,000 and upward, and every union free-school district having a like population, which employ a competent superintendent of schools, $800; and to cities having more than one member of assembly in the State legislature, $500 for each additional member, to be expended according to law for the support of the public schools. He then sets apart any money that may have been appropriated by the legislature for library purposes, and $6,000 for a contingent fund. Next he sets aside to the Indians on reservations, for their schools, a sum equal to their proportion of the State school money, on the basis of distribution established by law. These sums set aside, the remainder of the State moneys is divided into two equal parts. The superintendent now apportions to every district in the State $100 (called a "distributive portion" or "district quota"), provided it has maintained a school, taught by a single qualified teacher or succession of such teachers for the legal term of the preceding school year; and the same sum for every additional qualified teacher or succession of such teachers, not counting monitors. The school year is one hundred and sixty days, not including holidays that occur during the time or Saturdays. This apportionment made, the superintendent divides the remainder of the school moneys among the counties according to their respective population as determined by the last preceding United States census, excluding Indians on reservations. But cities that have special school laws receive their due share separate and apart from the remainder of the counties in which they are situated.

The New Jersey State school tax, equal to $5 for each child in the State between the ages of 5 and 18, is raised by the several counties according to their amounts of taxable property respectively, as shown by the tax rolls of the townships and wards of the counties. Ten per cent of this tax, when it is paid into the treasury, is known as a reserve fund, and is apportioned among the counties by the State board of education "equitably and justly, according to their own discretion." The 90 per cent remaining is then divided among the counties in the proportion that they have contributed to the tax. When the State school moneys reach the counties they, together with all other school funds in the custody of the county, are distributed to the townships and cities on the following basis: (1) $200 for each teacher employed in the public schools for the full term for which the schools are maintained during the year next preceding (nine months); (2) the remainder according to the last published school census (children from 5 to 18 years of age), provided that no district shall receive less than $275, and that districts with 55 children or more shall not receive less than $375. If these funds are not sufficient to maintain a free school nine months in the year, then the inhabitants may raise by a district tax such additional amount as is needed for that purpose.

The local 1-mill tax levied by Minnesota is expended within the districts where it is raised. It is, therefore, only a compulsory district tax, the same as in Michigan. The current school fund of the same State, which includes the income of the permanent fund, is distributed on the basis of the number of pupils who have attended school forty days or more in districts that have had school for five months or more during the year. In addition to the above apportionment, graded schools having not less than three departments, which come up to certain requirements, receive aid from the State to the amount of $200 each. Besides, there are 85 high schools that receive State aid to the amount of $400 each. The grants to these graded schools and high schools are paid from permanent appropriations that are met by general taxation, and are apportioned by the State high-school board, on evidence that the schools are complying with the requirements. Minnesota also gives the sum of $500 annually to State high schools providing elementary normal instruction of a kind that satisfies the high-school board. Wisconsin also has an approved high-school list, one-half the cost of maintaining these schools being paid from the State treasury. Moreover, Wisconsin pays $250 each to certain approved high schools in which manual training is taught.

The California system of school finance is a unique system. The State superintendent apportions to the counties the State school fund according to their respective numbers of school-census children (from 5 to 17, certain classes being excluded). Each county superintendent first ascertains the number of teachers every district in the county is entitled to on the basis of one teacher for every 70 school-census children, or fraction thereof not less than 20, as shown by the next preceding school census, and then the number to which the county is entitled by adding these district numbers together. He then calculates the amount of money to be raised at the legal rate of $500 a teacher. From this amount he deducts the quota of the State fund assigned to the county, and the remainder is the minimum amount of the county school fund to be raised by taxation for the ensuing year, provided that the minimum of such fund shall not be less than $6 for every census child. The county fund thus made up is then distributed to the districts in accordance with this rule, viz, $500 for every teacher, except (1) that to districts having less than 20 census children only $400 is assigned, and (2) that to districts having more than 70 census children $20 additional for every such child less than 20 in number shall be allowed. All school moneys remaining in the treasury after this apportionment has been made are then divided among the districts of the county in proportion to the average daily attendance upon each district during the preceding school year. District taxes may also be raised, subject to certain legal conditions (Appendix C).

The subcommittee does not feel called upon to deal with all the States, or even with all the peculiar modes of distributing school moneys. It believes that the enumeration of particulars now made is ample for the present purpose. Some remarks upon the leading rules or methods of distribution are, however, called for.

1. Distribution according to the school census or enumeration is open to a serious objection, viz, it does not carry the money where it is most needed. For example, two districts lie side by side, one having 20 and the other 40 youths of school age; the second district draws twice as much money as the other, but the cost of keeping up the two schools is practically the same. The same would be true of two township units, unless the schools were consolidated. The result is that the district or township that needs the most help receives the least. The rule is simple and easily worked, but it tends partially to defeat the end of State or county aid.

2. The same objection holds against rules based on the school enrollment or on attendance, only with somewhat diminished force. Again, if the enrollment is followed, or attendance for a brief time, there is danger that some children will go to school long enough to be counted, and then drop out. Besides, such rules of distribution work in favor of the graded schools and against the rural schools, on account of their larger enrollment and more regular attendance.

3. Taking everything into account, the subcommittee is inclined to think that a fixed sum or sums, based on an arbitrary unit or units, is most equitable. Examples of such rules are furnished by the States of Massachusetts, Rhode Island, New York, New Jersey, and California. The most serious objection to such rules is that they are necessarily complicated; some of those given above are quite complicated. Then, if the fixed sum is so much a teacher, as in New York, or so much a district, as in Rhode Island and New Jersey, there is a temptation to the undue multiplication of schools or teachers. But this point can be safeguarded by fixing statutory limitations, as in California. No rule can be devised that will not be open to objection. The subcommittee does not believe it possible to invent any rule of distribution that will well accomplish the purpose of taxing large units for the benefit of small ones, unless it rests on the school or the teacher as a unit with the necessary qualifications. The Massachusetts rule is open to the objection that the school needs of towns can not always be measured by low valuations of property assessed for taxation, as the number of pupils to be educated is also a factor. If the method of distribution now recommended is objected to as an exclusive one, then it may be supplemented by basing a part of the appropriation on the school census, enrollment, or attendance. The resort to the United States census is most objectionable, as great changes of population occur in the course of ten years.

The difference in the working of the school-census method and the fixed-sum method of distribution is well shown by comparing the statistics of two States. For the fiscal year ending November 15, 1895, the mill tax of Ohio produced $1,720,922. Of the 88 counties 40 paid more into the fund than they received from it, while 48 paid less than they received. Some of the major counties of the State received more from the fund than they paid into it, while minor counties paid more than they received. For the year 1896 the city of Cleveland actually received $2,616.67 more from the State than it paid to the State. Assuredly, a rule that makes the agricultural counties of Ohio, or many of them, contribute to the education of Cleveland, the most populous city in the State, is a travesty of common sense.

But the same year Cincinnati paid in round numbers $70,000 more than it received. This is hardly better than repealing the mill tax outright, and letting the burden of education fall directly upon the cities and townships. On the other hand, the State of New York, in 1896, paid a total general school tax of $4,062,903, of which $3,500,000 was immediately distributed to the counties again. Fifty-four of the 60 counties received more from this tax than they contributed to it; only 6

counties paid more than they received. Erie County paid $241,597 and received $185,460; while the corresponding figures for Kings and New York counties were $503,603 and $387,879, and $1,884,584 and $636,133, respectively. The New York rule does bring the strong to the help of the weak.

A question arises in respect to separate funds for buildings, the payment of teachers, and incidental expenses. In the opinion of the subcommittee such division is desirable. The need of providing new buildings is often made an excuse by boards of education for keeping down the salaries of teachers. The triple fund would not indeed prevent such injustice, which makes teachers as such contribute to buildings, but it would tend in that direction. It is often stipulated in school laws that State funds apportioned to communities shall be wholly applied to the payment of teachers. This is a wholesome regulation. The cost of grounds, buildings, and incidental expenses should be met by local taxes or other local funds. Touching the division of the cost of public education, State Superintendent Stetson, of Maine, in a private communication, thus defines the prospective policy of that State: "Local communities shall provide school lots and school buildings, and keep the same in repair. Two-thirds of the money raised for maintaining schools shall come from the State and one-third from the local communities. The apportionment of the money to the several municipalities shall be upon the basis of average attendance. We shall also try to get a law prohibiting towns from receiving State aid, if they maintain schools having less than a certain average attendance." Such a law as this would serve to prevent the undue multiplication of districts, and would even work a certain measure of consolidation.

The distribution of taxes levied on railroads, telegraphs, long-distance telephone lines, express companies, and the like, is an important question. In some States, as New York, Texas, and Ohio, school taxes levied on railroads inure to the exclusive benefit of the districts or townships through which the tracks run, excluding any State tax that may be levied on such property. This rule the subcommittee regards as unjust. The location of railroads is determined largely by physical conditions, and the mere fact that a line happens to run through its territory, where probably not a dollar of the stock or bonds is owned, is no reason why a district or township should profit thereby to the exclusion of other and less fortunate districts or townships.

In Pennsylvania the taxes on railroads are paid into the State treasury and are distributed by the legislature along with other revenues, the public schools, normal schools, and colleges being included among the objects of the appropriation. California has a similar provision. The mode of distributing the Michigan specific tax has already been described. It is believed that such revenues as the foregoing should inure to the common benefit of the State; but what is here said, let it be remarked, in no way relates to pending controversies about the taxation of railroads or other similar property.

The Nebraska law contains one excellent feature that is worthy of mention. All public high schools in the State that, as determined by the State department of education, have a proper equipment of teachers, appliances, and course of study, are open to attendance by any person of school age residing outside the district who is a resident of the State and whose education can not be profitably carried on in the public school of the district of his residence. Such pupil must have a certificate signed by the county superintendent that he has completed the common-school course prescribed by the State department for work below the high school. He must attend at the high school nearest to his residence or at a high school of approved grade in the county of his residence. Any school board that furnishes high-school instruction to such pupil is authorized to charge 50 cents a week for the time that he has been in attendance, and it is made the duty of the county board to pay all such bills out of the county school fund. Massachusetts and Ohio, and perhaps other States also, provide for educating qualified pupils in high

schools in other places than those where they reside, provided there are no home schools for them to attend, and this without cost to themselves. As Massachusetts is the only State that makes the provision of high schools compulsory under any circumstances, it may be well to mention the principal features of the State law in regard to that subject. Every town having a population of 4,000 persons or 500 families is obliged to maintain a high school, the grade of the school depending somewhat upon the fact whether it has the larger or the smaller population. Pupils living in towns that are not required to maintain a high school can attend any neighboring high school that will receive them. In such cases the State pays the tuition of the pupil, provided the valuation of the town in which he resides does not exceed $500,000; if the valuation does exceed that amount the town pays the tuition. High-school tuition is, therefore, wholly free to every qualified pupil in the State.

ORGANIZATION.

The subcommittee is not here interested in the subject of school organization further than it relates to school maintenance. Its relations to teaching, supervision, and studies are topics belonging to other divisions of the general report. The statement and enforcement of two propositions will answer the present purpose.

I. The first proposition is that the township-unit system is far superior to the district system, and should be substituted, if practicable, for that system wherever it exists. The superiority of the town or township as an administrative unit is as great as its superiority as a taxing unit. The principal advantages are the following:

1. If the schools of a township are under a single board elected from the township at large, schoolhouses will far more likely be built where they are needed than under the other system.

2. Equality of school provision will be much more fully secured in respect to schoolhouses and grounds, length of school terms, and the ability and character of teachers.

3. The tendency will not be to multiply schools unduly, but to restrict their number, bringing together more scholars, and thus making better classification, grading, and teaching possible, and increasing the interest and enthusiasm of the pupils.

4. Better supervision can be secured. The county superintendent can deal more effectively and easily with one board in a township than with six, ten, or twelve; while township and township-union supervision will be greatly promoted.

5. Simplicity and economy of administration will be facilitated, and the sense of official responsibility be enhanced.

6. The tendency will be to employ teachers for longer terms, and thereby to restrict, in a considerable degree, the evils that flow from frequent changes. On this point the statistics of Mr. Gass, presented in this report, may be mentioned.

7. The strifes and contentions between districts that are now not infrequent will be prevented.

8. Transfers of pupils from school to school will be made more easy.

9. The reason last to be mentioned is perhaps the strongest of all. The relations of the township-unit system to school consolidation have already been suggested. The township system does not necessitate such consolidation, although it is likely to work that way; but consolidation is almost wholly dependent upon that system; schools will not be consolidated in great numbers if a plurality of district school boards have to do the work.

The subcommittee has stated that the adoption of the township-unit system will be followed by the reforms that have been mentioned. It is not, indeed, meant that such will be the unvarying result. There will be exceptions—perhaps

many exceptions—when the whole country is considered, but the tendency will be strong in the directions named, or such will be the general character of the result. Not only is this the suggestion of common sense, but it is the teaching of experience as well. (Appendix E.)

The town-unit school system was the ancient system of New England. The classic-school law enacted by the general court of Massachusetts in 1648 ordered that the towns should found schools on their reaching a certain number of householders, the teachers to be paid either by the parents of such children as resorted to them for instruction or by the inhabitants in general by way of supply, as those who ordered the prudentials of the town should appoint. The word "township" is also used in the law. Connecticut followed the example of Massachusetts. The original New England town, which was a small concentration of population, was well adapted to this system. But "as the population of each little nucleus of settlement spread itself out from the center of the original 'plantation,' it early became convenient, in Massachusetts and Connecticut at least, to allow neighboring families at a distance from the local concentration, or nucleus, to form themselves into a school district." The original church parishes were divided in the same way. If these districts had been founded merely for the purpose of school supply, or to regulate attendance, there would have been, under the conditions existing, no objection to their formation, but the contrary. Unfortunately, however, these new districts also became units of school maintenance, bodies corporate and politic. These districts appear at first to have existed by sufferance merely, but the celebrated school law of 1789 legalized them, thus paving the way for the general introduction of the new system. Horace Mann declared in his Tenth Annual Report: "I consider the law of 1789 * * * authorizing towns to divide themselves into districts the most unfortunate law on the subject of common schools ever enacted in the State." Still this "act was not repealed until manufacturing had restored those concentrations of population which in the early colonies had invited township control of school affairs." This was finally done. Mr. Mann in the same report (p. 37) bore this testimony to the superiority of the town system:

As a general fact, the schools of undistricted towns are greatly superior to those in districted towns—and for obvious reasons. The first class of towns—the undistricted—provide all the schoolhouses, and, through the agency of the school committee, employ all the teachers. If one good schoolhouse is provided for any section of the town, all the other sections, having contributed their respective portions of the expense to erect the good house, will demand one equally good for themselves; and the equity of such a demand is so obvious that it can not be resisted. If, on the other hand, each section were a separate district, and bound for the whole expense of a new house if it should erect one, it would be tempted to continue an old house long after it had ceased to be comfortable, and, indeed, as experience has too often sadly proved, long after it has ceased to be tenantable.

So, too, in undistricted towns we never see the painful, antirepublican contrast of one school in one section kept all the year round by a teacher who receives $100 a month, while in another section of the same town the school is kept on the minimum principle, both as to time and price, and, of course, yielding only a minimum amount of benefit, to say nothing of probable and irremediable evils that it may inflict. In regard to supervision, also, if the school committee is responsible for the condition of all the schools, it is constrained to visit all alike, to care for all alike, and, as far as possible, to aim in all at the production of equal results, because any partiality or favoritism will be rebuked at the ballot box. In undistricted towns, therefore, three grand conditions of a prosperous school, viz, a good house, a good teacher, and vigilant superintendence, are secured by motives which do not operate, or operate to a very limited extent, in districted towns. Under the nondistricting system it is obvious that each section of a town will demand at least an equal degree of accommodation in the house, of talent in the teacher, and of attention in the committee; and should any selfish feelings be indulged it is some consolation to reflect that they, too, will be harnessed to the car of improvement.

The district system was at one time universal, and it exists in some form in a great majority of the States to-day. In Maine, New Hampshire, Massachusetts,

and New Jersey it has been wholly swept away. In Connecticut and Rhode Island the town system is permissive and exists side by side with the district system. The township system exists in Pennsylvania, Ohio, and Indiana. It is permissive in the upper peninsula of Michigan, in Wisconsin, and in Minnesota, and doubtless in other States. It varies somewhat in the organization of the local authority. The Massachusetts school committee consists of three members, or a multiple of three, elected from the town at large. In New Jersey the board consists of three, five, or nine members, as the town may elect. The Ohio board consists of delegates or representatives elected by the subdistricts, one each. A single trustee elected by the people manages the schools of a township in Indiana, except that he is assisted by a director in each attendance district who looks after incidental local matters.

Considering the great superiority of the township system over the district system, it is not a little strange that its introduction in the room of its competitor should have been so steadily resisted as it has been. This opposition is due in part to the power of conservative habit, in part to the belief that the district system is more democratic, and in part to the popular fondness for office holding, all conjoined with much misconception and ignorance in respect to the merits of the two systems. It has also been urged in favor of the district by politicians that it is the best unit for canvassing the States for political purposes. Certainly it can not be objected to the township system in its pure form that it is not sufficiently democratic. In 1875 there were 15,087 teachers employed in teaching the common schools in Ohio, and there were in the State at the same time more than 35,000 school directors and members of boards of education charged with the administration of the schools. This, assuredly, is an excess of democracy.

The "community" system is much worse than the district system, and fortunately it is confined to a single State. The Texas law permits parents, guardians, or other persons having control of children of scholastic age, residing in any one of the so-called "community" counties (35 in number out of a total of 250), to unite and organize themselves into a free-school community entitled to the benefits of the available school fund belonging to the county, upon complying with certain prescribed conditions. The persons so uniting and organizing first address a petition to the county judge, who is ex-officio county superintendent of schools, duly signed by the petitioners, setting forth that the community is white or black, as the case may be, giving an alphabetical list of the names of children of scholastic age within the limits proposed, describing the capacity of the schoolhouse and the character of the other conveniences that the petitioners have to offer, naming persons to act as trustees, etc. The matter then passes into the hands of the judge, who has no discretionary power in the premises. He may not even throw aside such a petition either because it is signed by few persons or because the alphabetical list carries few names. The law does not fix any minimum number in either case. If the people of a neighborhood desire a school, no matter how few they may be, a school the judge must grant them. The "community" is a voluntary district in the strict sense of the term, having legal existence for one year only, and having no authority to levy a local school tax, and the evils that attend it are far greater than those that call so loudly for the abolition of the district system wherever that is practicable. The people of Texas can, however, congratulate themselves that the "community" school, which plainly originated in pioneer society, has lost ground in later years.

In the South, and in those Western States that have the county system of local government, the only practical alternative to the district system of school organization is a county system. It must be remembered that in these States the town or township does not exist. Fortunately, such a system is not altogether unknown. In a few counties of Georgia it has been in successful operation for a number of

years. These are the principal features of the system as it exists in Richmond County, in which the city of Augusta is situated:

The county is the unit area of organization, and the rural parts and the urban parts of the county district, as far as practicable, are treated just alike. A board of education, composed of representatives elected by the people of the county for the term of three years, one-third retiring each year, manages all the schools. The school tax is levied at a uniform rate upon all the property of the county, without revision by any other authority and without any limit as to rate or amount. The county and State funds are distributed to the schools according to the number of children to be educated. There is no district tax. The same qualifications are required for country and for city teachers. The teachers are treated as nearly alike as the conditions admit, and they are paid about the same salaries. The schools are in session the same length of time in a year, nine calendar months. The country schoolhouses, on the average, are situated 4 miles apart, and no child is out of walking distance of a school open nine months in the year, and taught by a good teacher. One superintendent has charge of all the schools. Augusta has nine-tenths of the taxable property of the county, but only three-fourths of the school population. In other words, the rural parts of the county pay one-tenth of the school tax and receive the benefit of one-fourth of it. For the most part, these are excellent provisions. The county would seem to be the natural area unit for popular schools under the county system of local government. The subcommittee confidently believes that this mode of school organization has a great future before it in the United States (Appendix D).

II. In those parts of the country where existing physical and social conditions render it practicable there should be such a consolidation of rural schools as will diminish the existing number of schools, schoolhouses, and teachers, and bring together, at advantageous points, the pupils who are now divided and scattered among the isolated schools of the township or other similar district. This step should be taken in the interest of good education as well as of public economy. To make this reform possible, the children, as far as may be necessary or practicable, must be conveyed to and from the schoolhouses at public expense.

How absolutely fatal to good schools the existing conditions are in many parts of the country, statistics show most conclusively. State Superintendent Wells, of Wisconsin, reported in 1894 that his State had 183 districts whose average attendance the previous year was not more than 5 each; that 858 others were not above 10 each; while 2,481 more did not exceed 20 each. "In other words," he said, "3,523 country districts, about three-fifths of the total number, have an average attendance not exceeding 20, and about two-fifths above that average, with the great majority near the lower margin."[1]

Mr. H. R. Gass, of Michigan, citing the State report for his authority, states in a published paper that in 1886 the country schools of Calhoun County in that State required 158 teachers, and that they employed 342 different ones in the course of the year. The average length of the school in the district was 8.4 months, while the average term for which the teachers were employed was but 3.8 months. He cites a second county that presents like statistics, and then observes: "The ratio of the number [of teachers] required to the number employed is about the same as this throughout the State, the tenure being longer in the newer than in the older counties." This state of things Mr. Gass attributes to the prevalence of the district system! He refers to Massachusetts and Indiana, where changes of teachers are much less frequent and teachers' tenures much longer than in Michigan. While two teachers on an average were employed in Michigan for a school every year, but few schools in the other States employed more than one. In the same State at the present time there are over 1,000 districts that enumerate less than 25

[1] "The Township System of School Government." Madison, 1894.

children of school age each, while 70 counties contain 468 districts that enumerate less than 15 each. The statistics at hand do not show the actual size of the schools. Nor are the small schools found in the newer and poorer parts of the State only; the oldest and richest counties have their fair share of them. In fact, the newer parts of a State often have the largest and best schools. Not only so, the oldest and most densely populated States frequently make a very poor showing. In 1894–95 there were 7,529 school districts in New York, in each of which the average attendance upon school during the year varied from 1 to 20 pupils, while the average daily attendance in each of 2,983 districts was less than 10 pupils (Appendix I). In 1893 Vermont had 153 schools of 6 pupils or less each. In 1892 State Superintendent Luce, of Maine, reported that the average enrollment in the schools of that State for the previous year was less than 25 pupils to a school, and that the number of districts having less than 25 was larger than the number having more. He declared that there were probably between 1,000 and 1,200 existing schools in the State whose enrollment was 12 or less, and that 600 or 800 schools then existing could be abolished without detriment.[1] Twenty-five years ago a large number of schools on the Western Reserve, Ohio, long famed for schools, had dwindled to the most insignificant size. Still other statistics of similar import will be found in the report of the subcommittee on instruction and discipline. Attention is drawn particularly to those relating to Rhode Island and Massachusetts.

But it is needless to multiply statistics or to insist at length that thousands of rural schools furnish their pupils with a miserable preparation for the duties of life. When we consider the various elements that enter into good education, and especially training for social activities, it is not too much to say that a very small school is almost necessarily a very poor school. The facts are notorious. Hitherto it has been supposed that, although the cities and towns surpassed the rural districts in higher education, the rural districts contained a smaller proportion of illiterate persons. This has been the prevailing view in the Northern States, and probably it was once in accord with the facts. The cities have been considered the great hives of illiteracy. But there is now grave reason to question whether the fact is not often the other way. Certainly it is so in the only State where, so far as the subcommittee is informed, the subject has been statistically investigated.[2] But however this may be, a remedy for the unsatisfactory state of the rural schools is one of the pressing needs of the day. What can be done? One thing that can be done is to consolidate many of the small schools by carrying back and forth such pupils as need to be carried, and thus, by one stroke, create several of the conditions of good schools. The interest that this subject is beginning to awaken is one of the hopeful signs of the times.

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[1] Quoted by Mr. Gass. See "Transactions of the Michigan State Teachers' Association, 1887."

[2] The State referred to is Michigan. According to the State census of 1894 the ratios of the foreign-born persons in the cities of the State, 10 years of age or more, unable to read and write, and in the State at large, were practically the same, 84 in 1,000. But the ratios of the native-born in the cities, in the State at large, and therefore in the country districts, were quite different. In the cities it was 14 in 1,000; in the State at large, 21 in 1,000; in the country, 24 in 1,000. For every 14 persons 10 years of age or upward in the cities unable to read and write there were 24 in the country; that is, the ratio in the country is 70 per cent greater than that in the cities. If the country rate of illiteracy could be reduced to the city rate, the number of illiterates of the native-born population 10 years of age and upward unable to read and write would be reduced about 8,000. Several facts, no doubt, enter into the explanation of the greater illiteracy of the country districts, but the most important of them is the inferiority of the country schools. It does not explain matters to say that Michigan is comparatively a new State; that much of it is thinly settled; that it contains large lumbering and mining districts, etc. The fact is that in the oldest and wealthiest parts of Michigan the cities, as a rule, surpass the counties in which they are situated in respect to popular intelligence. The city of Detroit ranks distinctly higher than Wayne County, and the same may be said of the cities of Grand Rapids and Ann Arbor as compared with Kent and Washtenaw counties. The counties named contain the cities mentioned.

It was Massachusetts that led the way in developing the district system, and it is Massachusetts that is leading the way in consolidation. An act that dates from 1869 authorizes any town in the Commonwealth to raise money by taxation to enable the school committee, in its discretion, to provide for the conveyance of pupils to and from the public schools at public cost. The towns were already empowered to build schoolhouses wherever they were really needed. Availing themselves of these powers, many towns have entered upon the work of consolidating their schools. How the work goes on is shown by the following table exhibiting the sums of money paid for public-school transportation for a series of years:

Year.	Amount.	Year.	Amount.
1888–89	$22,118.38	1892–93	$50,590.41
1889–90	24,145.12	1893–94	68,617.66
1890–91	30,648.68	1894–95	76,608.29
1891–92	38,726.07	1895–96	91,136.11

The movement has extended beyond Massachusetts and reached every one of the New England States. In these States many hundreds of schools have been consolidated, and with the most gratifying results. Occasionally an unsuccessful experiment is reported, but the great stream of testimony runs strongly the other way. Longer school terms, better teachers, better grading, better instruction, more interest in the pupils, greater physical comfort on the part of the children, better supervision—these are the claims that are made for the new departure (Appendixes E and F). Other things being equal, the new way is never more expensive than the old one, and often it is less expensive.

The movement has spread beyond New England. In 1894 a law was enacted in New Jersey providing for the transportation of pupils at public expense in order that rural schools might be consolidated with city ones. A most interesting experiment in consolidation is being tried in northeastern Ohio, where some schools had already died out and many more were lingering on the verge of death. Permissive legislation has been obtained in several counties, and already many townships are working the plan successfully, while many others are looking on expectantly and are apparently on the point of making the new departure. The newspapers are quick to note the innovation, and it is already attracting attention beyond the borders of the State (Appendix F).

The distinct pedagogical advantages of consolidation are much more fully set forth in the reports on supply of teachers and instruction and discipline than here. In this report the topic is dealt with mainly as it is related to organization and administration. The fact is, however, the several aspects of consolidation are inseparably connected. As a rule, whatever promotes simplicity and ease of administration promotes good instruction, and vice versa. No one of the subcommittees that handle the subject for a moment supposes that there is any charm in the word "consolidation" to cast all the evil spirits out of the rural school, but they all believe, after giving the subject mature consideration, that great possibilities of improvement lie in that direction. It is perfectly true that the consolidation remedy can not be universally applied, because physical and social conditions often forbid. The fact is that a large proportion of the children of the land will be schooled in little schools—rural schools, ungraded schools—or they will not be schooled at all. Suggestions looking to the improvement of these schools will be found in the reports of all the subcommittees, but insistence is here placed upon the fact that the consolidation remedy can be applied on a grand scale, with the largest promise of success.

In most States some new legislation will be necessary to that end, but not in all.

Wherever the township-unit system exists, the first step, and the long step, has already been taken. In such States it should not be difficult to secure the needed legislation in relation to transportation. State Superintendent Emery, of Wisconsin, has already notified the people of his State that the laws contain all the provisions that are necessary to enable them to move at once in the direction of school consolidation.

It is important that the consolidation reform shall not be misunderstood. It does not necessarily mean that there shall be only one school in a town or township. It does not mean either that parts of different townships or counties shall not be comprised in one school. These questions are merely matters of detail, and their adjustment will depend upon such factors as the size of townships, the distribution of villages or other local centers, the direction and condition of roads, streams, and bridges, the distribution of population, and the physical configuration of the township and the adjacent parts of the country.

It is noteworthy how the different phases of educational reform all tend to hold together. In the Northern States the cause of school consolidation depends intimately upon the adoption of the township-unit system. A certain amount of consolidation can be effected by the abolition of small districts; it may be possible, also, for several independent districts to merge their schools into one, for the time at least, and still preserve their independence; but it is manifest that the first plan will not prove effectual and that the second one will be infrequent and precarious. The subcommittee believes confidently, therefore, that the fortune of effectual consolidation is closely bound up with the fortune of the township-unit system.

It is also noteworthy, let it be remarked again, how different social elements tend to attract one another and so to coalesce. School consolidation, especially its practicability, turns largely upon means of cheap, safe, and easy communication throughout the school area. Here we touch a question intimately relating to social progress that has been receiving increasing attention the last few years. Reference is made to the improvement of roads. Those who have been promoting this movement have not probably regarded it as a measure of educational reform; but such it is. Perhaps there is no rural interest of a social nature that would be more decidedly enhanced by good roads than the educational interest. The people of some of the towns of Ohio, where the new plan is being tried, claim this as a decided advantage, that the drivers of the omnibuses serve as carriers for the mails between the farmhouses and the post-offices, thus promoting the diffusion of intelligence in still another way.

Only a single point remains to be pressed, but it must be pressed strongly. This is the necessity of lengthening materially the time that the country schools on the average are in session each year and the securing of a more regular attendance of the pupils. The legal years now vary widely in different States, and the practical or real years still more widely. Some communities always surpass the legal minimum of time, others as regularly fall below it. In the thickly settled States of the East the rural schools are in session eight, nine, or ten months in the year; but often in the South, and sometimes in the West, one-half the shortest of these terms is not reached. The legal year is frequently absurdly short. Until two years ago the Michigan year was but three months, and now it is but five months. It is quite unnecessary to argue that short schools are, evenly relatively, poor schools. In order to have a good school it is necessary not only to bring pupils together in considerable numbers, but also to hold them to the work a certain number of hours each day and a certain number of days each year. There must be a concentration of effort as of pupils. It is as wasteful a method of education to send children to school seventy or eighty days in the year as it is to send them two or three hours in the day. Persons interested in popular education, and particularly in rural education, should not rest therefore in their efforts until they

have made the legal school year in every State at least one hundred and sixty or one hundred and eighty days.

But it will not be enough for the State simply to fix a minimum school year; it must see to the enforcement of the law. The law should hold communities to a rigid accountability in respect to maintaining schools of legal grade for the full legal periods, to employing none but certificated teachers, and making all the required reports to the State educational department. Most school laws contain such provisions as these, but it is feared that they are not always enforced. The only practicable mode of enforcement is absolutely to withhold from the local organizations all aid from the superior taxing units, as the State, until they first observe the law.

And again, it will not suffice for the State to see that the prescribed quality of instruction is actually furnished. It might perhaps be thought that if the State only provided local schools and made them free the people would be only too glad to avail themselves of them to the full, but sad experience shows that this is not always the case. The indifference, ignorance, and selfishness of some parents come between their children and the schools. In communities where the school attendance is compulsory some parents are in an almost constant battle with the authorities to keep their children out of the school as much as possible. It is possible that such extreme indifference or selfishness as this is more common in cities than in the country; and yet it is true, as a rule, that the country child's labor, especially the farm boy's labor, has a greater money value than the city child's labor, and that the farmer is therefore under a special temptation to keep his boys out of school. On the whole, there is quite as much need of an efficient compulsory attendance law in the country as in the city, and perhaps more.

The subcommittee has not taken space to discuss, in general, the common education that the American States are now furnishing the American people. That is a large subject, and for the most part lies outside the field of the present inquiry. It will suffice to say on this large question that the people had better pay what they do pay for what they get than to go without it, or even twice, thrice, or four times the sum; but at the same time they might receive and should receive a great deal more for their money than at present. This is particularly true of the rural schools. No doubt there are many excellent schools in the country, but on the whole it may well be doubted whether any money that is expended in the people's interest is expended more wastefully than what goes to the country schools. No doubt the country school has points of advantage over the city school, as the freer communion with nature, but on the whole it is inferior. The typical "little red schoolhouse," so invested with sentiment, is a costly and unsatisfactory institution of education. Owing to social changes, in many parts of the country it is much less efficient and useful, at least relatively, than once it was, and a new organization is imperatively called for. Something should be done to stop the wasteful expenditure of the public money. State Superintendent Stetson, speaking for his State, puts the case thus in a communication to the subcommittee:

I have devoted quite a number of pages in my report [1895] to showing the people of Maine that we are wasting an enormous sum of money in this State because of the unbusinesslike methods which are used in the expenditure of its school funds. This waste is made in every direction in which money is spent. We pay more than we need to for school lots, the erection of school buildings, the furnishing of school appliances, text-books, fuel, making repairs, etc. The waste along these lines aggregates more than one-third of a million of dollars each year. I have shown in the report that the money which we spend for common schools is sufficient to maintain schools taught by professionally trained teachers and superintended by competent superintendents; that in addition to doing these two important things we would have money enough left to supply them with the appliances necessary for a successful school, and also furnish the needed apparatus, library books, and make all the needed repairs and additions. I feel that I have demonstrated this point so that there will be no further question about it in

the State of Maine. The whole matter turns upon the simple point that we are alarmingly wasteful in our expenditure of school money.

Personally I am in favor of local communities being responsible for providing school buildings. I think two-thirds of the funds required for the maintenance of the common schools should be furnished by the State, and that the other third should be raised by local taxation; that the State should examine all teachers and issue all licenses to teach; that towns thus receiving State aid must employ teachers who hold such certificates. The State should inspect the school accounts of the towns receiving State aid.

The subcommittee deems it advisable, now that the whole ground has been covered, to restate the fundamental propositions that have been urged in this report. These all start from the one central postulate that a provision of funds sufficient for their adequate support is essential to the existence and life of good schools. The threefold division of the subject will be preserved in the summary.

I. REVENUE.

1. The great resource of the public schools is, and must continue to be, some form or forms of public taxation.

2. Such areas or units of taxation should be created, or continued if already in existence, as will fully develop the sound American principle that the whole wealth of the State shall be made available for educating all the youth of the State.

3. To accomplish this end, resort must be had to the larger units of taxation, especially where population is sparse and wealth meager. The following recommendations must be specifically urged: (1) A liberal provision of funds from the State treasury; (2) a county tax in at least all the county-system States; (3) a town or township tax in the States where this civil division exists; (4) taxes in special districts; that is, in cities and villages. The school district, in the commonly accepted sense of that term, is not a desirable taxing unit, but quite the contrary, and should be abolished as such unit.

II. DISTRIBUTION.

1. Funds raised by the large political or social units for general school purposes should be distributed in such a way as to bring the rich and the strong to the help of the poor and the weak.

2. Such rules of distribution should be adopted as will accomplish this end. In order to do this, distribution must be based, to a certain extent at least, upon fixed or arbitrary units; that is, so much money must be given to the school or to the teacher.

3. The large taxing units should render assistance to the small ones only upon the condition that the small ones first do something for themselves.

III. ORGANIZATION.

1. In the States where the town or mixed system of local government exists, the town or township school system should, as far as practicable, be substituted for the district system; in the county-system States the county-school system is the natural alternative to the district system.

2. In those parts of the country where existing physical and social conditions render it practicable, there should be such a consolidation of rural schools as will diminish the existing number of schools, schoolhouses, and teachers, and bring together, at advantageous points, the pupils who are now divided and scattered among the isolated schools of the township or other similar districts.

3. There is urgent need of lengthening materially the time that the country schools, on the average, are in session each year. The ideal should be a minimum school year in every State of at least one hundred and sixty or one hundred and eighty days.

The subcommittee does not expect to see, and does not desire to see, the school systems of the country all brought to one uniform pattern. It is too well aware of the great diversity of conditions that exist to think such a thing is possible. Even more, a certain variety, and so conflict, of systems is conducive to life, activity, and improvement. Neither is the subcommittee under any illusions as to what is possible, or probable, in a field of education so vast as that offered by the United States, with the great number of authorities, State and local. At the same time there are certain general laws governing successful school systems and schools that can not be ignored. Some of the principal of these laws have been set forth above; and it is believed that their general recognition will be followed by a marked improvement of the common schools, and so of the popular education of the country.

Some persons may ask, "How shall the principles laid down in this report be made practical?" "How shall they be established in communities or States where they do not exist, or exist only in part?" To these questions only a general answer is needed. The State legislature, the lawmaking authority, is the only source of power in relation to education, as well as in relation to all other branches of the State government. Accordingly, if the school law is defective and weak, the legislature must be called upon to repair and strengthen it. No progress can be made without an efficient law and efficient school authorities.

But how shall the legislature be induced to act in the premises? In precisely the same way that it is induced to act in other matters. Facts, arguments, persuasion, must be addressed to the members of the legislature. Above all it is important that the public mind shall be informed as fully as possible upon all branches of the subject. If the people generally knew how much better schools they might have than those that they do now have, and for no more cost, it is impossible to believe that they would not bestir themselves to effect reforms. The subcommittee marks out what it believes to be broad lines of educational progress. It enforces its views, as far as possible, with appropriate arguments. But it must necessarily leave the application of these views and arguments to the exigencies existing in particular communities or States to such persons, belonging to these communities or States, as are interested in the subject and are familiar with all the local facts and conditions.

B. A. HINSDALE, *Chairman.*
W. S. SUTTON.
S. T. BLACK.

REPORT OF THE SUBCOMMITTEE ON SUPERVISION.

The subcommittee on supervision of rural schools has taken into careful consideration the various topics submitted for investigation. Its inquiries have extended into all the States and Territories except Indian Territory and Alaska, and the facts are based on returns more or less full from all parts of the country.

Professional supervision is to-day regarded as an essential factor in our school system. It has been observed that the schools that are closely supervised by men who thoroughly know their business at once respond to the influence of this supervision. Expert supervision has resulted in systematic, orderly, and well-directed instruction. It is a matter of remark that the most competent superintendents have the best schools, and that cities noted for their excellence in school work have attained this preeminence through the medium of intelligent supervision. This is also true of those counties which have come under the same influence.

"There is no other agency in our school system that has done so much for the improvement of our schools in organization, and in methods of instruction and discipline, as the superintendency."

The attention of the profession, however, has been mainly directed toward

expert supervisions in city schools, and but little heed has been paid to the demand for such work in rural districts. It is quite time that our inquiries should be directed toward the character of the supervision demanded by the country school. If supervision through a competent superintendent is a good thing for city schools, there is every reason why it would be a good thing for rural schools.

STATE SUPERINTENDENT.

Although the State superintendent stands at the head of the public-school system of the State, his work is more closely related to rural than to city schools. As this report has reference only to the conditions of rural schools, your subcommittee will consider the duties of this officer as bearing upon that part alone of the general school system. No officer connected with the administration of State affairs requires higher or more essential qualifications than that of superintendent of public instruction. He should be a man of high moral character, well acquainted with approved methods and with the history and condition of education in his State. He should be in close touch with the educational spirit of the times, and should be one whom the profession regards as authority in all that constitutes excellence in school matters. It is also agreed that he should be an experienced teacher, of broad and thorough scholarship, and a good public speaker. With these qualifications there should be combined a large share of good common sense, and sufficient executive ability to manage the details of his office.

The legal term of office in Massachusetts and Rhode Island is one year. In Connecticut it is at the pleasure of the State board. In twenty States the term of office is two years; in four States, three years; in seventeen States, four years; but in no State does it exceed four years. The average length of term of the State superintendent is two years and ten months. The lowest salary paid is $1,000 and the highest $5,000 per year. The average salary is $2,475 per year. In answer to the question as to how much time the State superintendent devotes to supervision of schools, we had definite answers from thirty-seven States, in which we find that nineteen of these superintendents devote more than half of their time to visiting schools and traveling in the interest of education, and eighteen devote less than half their time. Quite a number of the State superintendents report that they divide their time equally between the office work and supervision. In only a few of the States does the State superintendent exercise no supervision, and in several the supervision is carried on through deputies or agents.

The State superintendent under present arrangements has but little time for personal inspection of school work. The superintendents in fourteen States visit each county once a year and in eight States once every two years. From the other States no definite information could be obtained. Many superintendents say, as often as practicable; in some instances, not at all. Our information is to the effect that most of the State superintendents devote as much time to supervision as they can spare, but that it is generally considered secondary to work of a clerical nature. There are undoubtedly in some States sections which have never been visited by the State superintendent or his deputy.

By some means the influence of the State superintendent should be extended until it reaches every rural school in the State. In all possible ways the office should be made useful to the teachers and school officers. The rural schools need this stimulating, helpful influence more even than those of the city. While in most States the office has but little more than advisory powers, yet, through lectures at associations and through the inspection of institutes, the State superintendent ought to be able to convince the teachers of rural schools that he is in close sympathy with their work.

The work of the State superintendent ought to be made more effective by so increasing his clerical force as to enable him to spend more time in direct contact

with the schools and school officials of the State. The careful compilation of statistics is very important, but it can be intrusted to a skillful statistician, while much of the routine work of the office can be well done by clerks. The higher and by far the more important work of directing educational movements, of instructing the people, and of creating public opinion and arousing public interest devolves upon the State superintendent. There is a general demand for more assistance in his office, longer tenure of service, and more liberal financial support. His work should be so related to that of the superintendents in the various subdivisions of the State for school purposes that the whole may be properly articulated, and the county or town superintendents be under his direction and control. He should come in frequent contact with them by conventions held for the purpose of instructing them in their particular duties, and should send them such circulars and letters as may be necessary to aid and direct them in their work.

The State superintendent should have the power to withhold the State appropriation from all counties or school districts not complying with the law in every particular, because he would then hold the key to the situation and could enforce his orders.

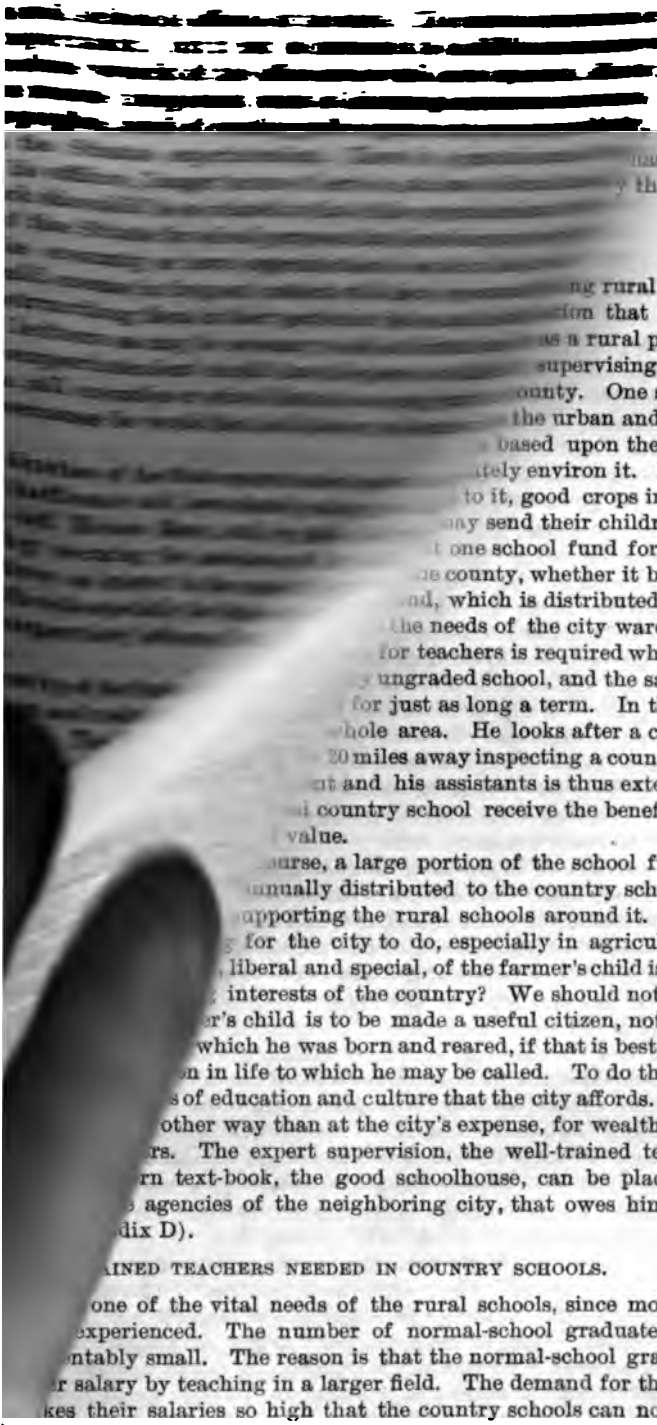
The main duties of the State superintendent are not only to organize and direct educational influence and laws already existing, but also to go among the people in the spirit of Horace Mann, and, by public addresses, by the liberal use of the press, and by securing the assistance of the leading men of the State, to arouse and keep alive an interest in the cause of popular education. In connection with the rural schools especially the State superintendent not only has great possibilities for a wise supervisory influence, but also great opportunities to arouse and instruct the people.

In a majority of the States the most needful legislation is that which bears upon the organization and maintenance of rural schools, and a supply of competent teachers for the same. The State superintendent, therefore, should be a man able to secure the cooperation of the legislature for the enactment of proper statutes. This can be done only by one who sees clearly the great needs of the school system, and who is able to go before the people and the legislature and unite all influences to obtain the necessary legislation. While putting into this high office any person solely through his political affiliations is to be deprecated, the State superintendent should be a man who knows how to approach the leaders of all parties and convince them of the justice and soundness of his plans, viewed from the high vantage ground of the general good.

COUNTY, TOWNSHIP, OR DISTRICT SUPERINTENDENT.

A still more important question opened for discussion is the character and degree of supervision below that of the State superintendent.[1] Thirty-eight States, mainly in the South and West, have county superintendents, whose duty it is to visit the schools and exercise the duties usually belonging to their office. The New England States generally have what is known as township or district supervision, which arises in large part from their political organization. In New England the town is the dominant political unit, while in the South and West it is the county. The simplicity and effectiveness of supervision are promoted when the units of political organization and of school administration are identical. This condition has its limitations, however, in the amount of territory to be covered and in the density of population, which is a varying quantity. The main point is to bring every rural school of the country as far as possible under the watchful care of a competent supervising officer. Responsibility is a strong

[1] In this report the term "supervisor" is used to include also county superintendent, commissioner, or any other term by which the supervising officer of a county or supervisory district is usually designated.



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AINED TEACHERS NEEDED IN COUNTRY SCHOOLS.

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stimulant. It is one of the weak points in our present system that too often the rural school-teacher is responsible to no one.

In regard to the operation of the two principal methods of supervision, there is no reason why any section should abandon the practice which has been found best adapted to its peculiar conditions. It must be conceded, however, that a single township, containing on an average ten or twelve schools, is too small a territory to engage profitably the entire attention of one person. In such a case one of two things must necessarily happen: Either the schools are supervised to the point of interference, or the supervision becomes uncertain, feeble, and unsatisfactory. In a general way, the rural township is too small a supervisory unit. Wherever it has been tried the supervisor has generally had some other business to attend to, and thus his work has been found wanting in those results which are most desirable. In order that the work of overseeing and directing may be effective, it must engage the entire time and the best thought of the supervisory officer.

A proper remedy for this is the combination of towns for supervisory purposes. Three, four, or five towns could be united in one supervisory district until a sufficient number of schools have been secured to engage the entire attention of one good man. The burden of his salary could be borne by these towns in the proportion of the number of schools they contribute to his work. This plan is in operation in Massachusetts, and has been satisfactory. A complete exposition of the Massachusetts plan of supervision of township schools is found in A. W. Edson's monograph, "Supervision of schools in Massachusetts." (Boston, 1895).

In that State 253 of the towns are supervised by 155 supervisors. While some of the large towns can alone support a supervisor, several of the smaller ones must unite to secure the services of an efficient officer. In addition to what the towns do for themselves, the State grants to those of low valuation, when they combine into a supervisory district, the sum of $750 to pay for a supervisor. These towns, however, are required to raise an additional sum equal to that furnished by the State, thus insuring a sufficient sum for the employment of an expert schoolman. By these means 93 per cent of the children of Massachusetts have been brought under close supervision. The salary paid to a supervisor is at least $1,500 a year, and he is enabled to devote all his time to the work and to inspect each school once a month. It is true that there are still about one hundred towns in Massachusetts without supervision, yet the feasibility of cooperative supervision with aid from the State is proven beyond all doubt.

"The State aid to a district amounts at present to $1,250—$750 toward the superintendent's salary and $500 toward the salaries of the teachers. The remainder of the superintendent's salary, $750, must be raised by the towns of the district. They are at liberty, of course, to raise more than $750 for the purpose, if they desire to do so." (Massachusetts State Report, 1895.)

What has been said regarding the combination of towns for supervisory purposes can be repeated with equal emphasis as to other small divisions of territory termed "school districts." The same principle applies here as elsewhere, that the interests of the schools included in a given territory should be sufficient to warrant the employment of a thoroughly competent person at such a salary as would justify devoting his entire time to his work. After all has been done, there will still be vast sections of country, especially in the West and Southwest, without any means of efficient supervision. No present remedy can be devised to aid them. It can be safely left for the several States, as population increases, to look after the interests of the schools in the light of the experience of older communities about them.

The worth of the county superintendency is acknowledged. but in many cases the county is too large an area and contains too many teachers for one man to properly supervise. The county is as much too large a unit for supervisory purposes as the township is too small. This remark, however, does not apply to every

county nor to any one State. In counties where the number of teachers is too large for one man to supervise the county superintendent should have one or more assistants or deputies to aid him in his work. They should be directly responsible to him for the kind and character of their work, and should be charged solely with supervisory duties. The importance of having one superintendent for the county or district to whom other supervisors are responsible must be emphasized, as it would be an error and a fruitful source of strife if in any territory there should be two or more supervisors having concurrent jurisdiction.

THE COUNTY UNIT.

Since this report is a symposium of suggestions for supervising rural schools, it may not be amiss to discuss a plan of supervisory organization that has found favor in some few counties that contain large cities as well as a rural population. We mention it here because it has valuable features for supervising the rural schools. There is but one school board for the entire county. One set of men legislates for the whole area, and it is their duty to relate the urban and suburban and rural schools into a sympathetic system. This is based upon the idea that every city is bound to respect the people that immediately environ it. It is to the interest of a large city to have good roads leading to it, good crops in the fields around it, and good schools to which the farmers may send their children.

With this as a foundation principle there is but one school fund for the entire county, raised by taxation upon all property in the county, whether it be in or out of the city. This makes the general school fund, which is distributed upon the basis of school population and according to the needs of the city wards and the rural communities. The same qualification for teachers is required whether they teach in a city graded school or in a country ungraded school, and the same salary is paid to them and in the same way and for just as long a term. In this system one superintendent is in charge of the whole area. He looks after a city graded school one day and the next day may be 20 miles away inspecting a country school. Expert supervision by a superintendent and his assistants is thus extended into the rural districts, and both city and country school receive the benefit of what there may be in each that is of real value.

Upon this plan, as a matter of course, a large portion of the school fund raised by taxation on city property is annually distributed to the country schools. The city is really made to assist in supporting the rural schools around it. And who shall say it is not a good thing for the city to do, especially in agricultural sections, in which the education, liberal and special, of the farmer's child is the probable salvation of the farming interests of the country? We should not lose sight of the truth that the farmer's child is to be made a useful citizen, not only content to stay in the home in which he was born and reared, if that is best, but fitted to fill honorably any station in life to which he may be called. To do this he must have all the opportunities of education and culture that the city affords. This can be brought about in no other way than at the city's expense, for wealth is massed in our populous centers. The expert supervision, the well-trained teacher, the long term, the modern text-book, the good schoolhouse, can be placed at the farmer's door by the agencies of the neighboring city, that owes him this and much more (Appendix D).

TRAINED TEACHERS NEEDED IN COUNTRY SCHOOLS.

Supervision is one of the vital needs of the rural schools, since most of their teachers are inexperienced. The number of normal-school graduates in rural schools is lamentably small. The reason is that the normal-school graduate can obtain a better salary by teaching in a larger field. The demand for this class of teachers makes their salaries so high that the country schools can not afford to employ them. As soon as teachers become proficient by reason of experience

acquired in rural schools, the probabilities are that they will be induced to seek better positions in cities where their experience and abilities will command higher salaries.

Add to this the other fact that many young men begin to teach as a stepping-stone to some other profession, and while they are teaching a country school are studying law or medicine, and their hearts are with that rather than with teaching; and also add that many young girls teach until they marry, or as long as they are compelled to teach, and no longer; that they have no real love for their work and no wish to stay in it, and we see how the problems multiply.

Rural schools suffer from lack of trained teachers. In them, as a general thing, are young graduates from the village high school, or some favorite among neighborhood families, or a type of ancient teacher whose placid life is not disturbed by the vexing problems of his profession. This raw material must be developed, made shapely, orderly, and systematic, if time is to be saved to the children, and schools properly supported. A bright and live supervisor will bring order out of confusion, harmony out of discord, and will give life and beauty to that which before was inert and ungainly.

Teaching is a great art, based on a profound science. The supervisor is the expert who has given this art and science his careful attention and whose business it is both to know how to teach and to show others the way of teaching. He can in some measure compensate for the lack of skilled work in the school by closely supervising and guiding inexperienced teachers and showing them what to do. An expert is one who possesses skill gained by practice. A supervisor who claims to be an expert should have experimental knowledge of "the how to teach." He is supposed to have given careful attention to those things which characterize a good school. Not only must he know how to teach, but he must know how to instruct others in the art and science of teaching. He must be a skilled teacher of teachers. Without this directing spirit, schools must necessarily suffer until teachers happen upon some better way. It is a great misfortune for schools to wait for wisdom in teaching until the many mistakes of teachers have pointed out better methods. The presence of skilled supervision has been the salvation of many schools.

It is one province of supervision in the country school to bring teachers into contact with each other, to illustrate better ways of teaching, to break up the isolation and monotony of rural school life, and to take to the doors and homes of people and teachers alike the life and freshness which have been the result of research and study on the part of the best minds in the profession. The province of supervision in rural schools falls far short of its legitimate purposes when it begins and ends in the schoolroom.

This point is not sufficiently well appreciated by those who have the oversight and care of schools scattered over a large tract of territory. Country schools have an environment of their own which should neither be forgotten nor ignored. The best supervisory work is that which brings into the rural school everything in farm and rural life which is strong and pure and wholesome. It is possible for the supervising officer so to exert his influence as to give grace and dignity to each individual school and make it the rallying point for every good influence, a blessing to the entire community in which it is situated.

Attention is here called to the fact that in general but little care is taken in the selection of officers chosen to look after the interests of the rural schools. In the majority of States the county superintendents are elected by the people of the county without any regard to the preparation or qualifications they may have for the work. Very few States require the superintendents to have any special qualifications, and in many instances supervisors are put in charge of teachers who know more about teaching than they do, and are required to hold examinations that they themselves could not pass. Add to this the fact that the superintend-

ents are generally paid very small salaries (average, $328 for the whole country) or a meager per diem, and that many engage in other business and regard supervision of schools as an incidental matter, and it becomes apparent that professional supervision is too often the exception rather than the rule.

WORK OF SUPERVISORS.

We need everywhere trained superintendents of schools. "Supervision of schools should rank next in importance to the instruction in schools; indeed, so necessary to successful instruction is competent supervision that the two should receive together the watchful oversight of the State" (New Jersey State Report, 1894). Supervisors should know as much of teaching as the teachers under them, and should be able instinctively to distinguish good teachers by their manners, dress, speech, disposition, and character. The best work of a supervisor is his skill in selecting teachers. Not by the results of examination alone, for some learned people make poor instructors; not by yielding to the pressure of family or political influence, for this will ruin any system of schools; not by selecting his own friends or favorites, for this is unworthy of his office; but by following the knowledge that comes to him through study, by long experience, by careful observation, and by conscientious conviction, which enables him to know a teacher when he meets one, though he may not be able to tell why.

Teaching is a matter of both disposition and knowledge. The former can not be examined, but it ought to be recognized; careful supervision will aid in developing it. Skill in doing this is an essential characteristic of a good supervising officer, especially in connection with rural schools. If the cry is raised (and it is) that there is not enough money to pay for professional supervision, the reply is that it would be wiser to have fewer teachers in order that those employed might be better qualified. A supervisor who is an expert can so arrange and organize the system that a less number of teachers can do the work and do it better, because each one is thoroughly competent. "A good superintendent earns many times his salary; a poor superintendent is too dear at any price. The work of supervision may be unsatisfactory either because the number of schools is too large for the oversight of one person, or because the supervising officer lacks the talent for molding, inspiring, and directing the work of others" (Pennsylvania State Report, 1895). Underpaid supervision is often unskilled and inefficient, and against this we raise our decided protest. Such supervision is of no value whatever to the schools—a penny-wise policy that economizes in the wrong place. A supervisor should have no other business than to care for the schools. He should not be a merchant, nor a lawyer, nor a farmer, nor an active teacher. His business should be to supervise the schools of his county, or township, or district, or whatever his area be called.

With a given sum of money for school purposes, to devote a part of it to skilled supervision will bring more children under enrollment, better teachers in the community, better instruction in the schools, and more satisfaction to the people, than if all the money were spent in paying the salaries of teachers.

In twenty-eight States the supervisors are required by law to visit each school twice a year, in the other States they are allowed to visit the schools as often as practicable. In one or two States the supervisors visit the schools very seldom. The length of time the supervisor spends in each school varies from fifteen minutes to one-half day. The time seems to depend very largely upon circumstances, the number of pupils, the character of the teacher, the efficiency, and the pay of the supervisor. A skilled supervisor inspecting an intelligent teacher can do more service in fifteen minutes than an unskilled supervisor visiting a poor teacher can do in a whole day. The average time spent in the ordinary rural school by the school supervisor is about one hour every year.

In twelve States the supervisors devote all their time to the work. In these

States the average salary is $1,002 a year. In fourteen States the supervisors devote only a part of their time to supervision, with an average annual salary of $408. Sixteen States report that in some counties the supervisors devote all their time to supervision, while in other counties the supervisors devote but a small part of their time to that work. In these States the salaries paid supervisors vary from $100 to $2,000 or $3,000 a year. Where good salaries are paid they devote all their time to supervision. Where small salaries are paid they devote but little time to this special work. All States have some supervision, though it varies greatly in amount and in efficiency.

In many sections of the country a supervisor not capable of suggesting to teachers better methods of teaching and not able to detect false methods pays only a perfunctory visit to the schools. He merely sees whether the building is clean, whether the children look bright and interesting, whether the enrollment is good, such facts as would be noticed by any person of ordinary common sense. Too often the contact of the average supervisor and the teacher of the rural schools is nothing more than a mechanical business performance, with such elements of aid and encouragement as any intelligent visitor may give the school. Although this is not without advantage, it falls far below the standard of professional supervision.

How many teachers a supervisor can direct can not be discussed except in a general way. Schools are more widely separated in some localities than in others, roads are better, teachers are better, and supervisors vary greatly in the rapidity with which they work. As a general rule, however, every rural school ought to be visited at least once in two months. Supervision can not be called close that does any less than that, and it would be better if the schools could be visited once every month.

No accurate information can be gained concerning the conditions of the school, nor can the proper influence be exerted over teacher and pupils, unless the supervisor has time at his disposal to make a reasonably thorough examination of the school and its surroundings. Sometimes, with an inexperienced teacher, he may find it necessary to spend the entire day in the school, while in other cases he may be able to visit two or more schools in one day. The point is that he must not feel compelled to shorten his visit, or to leave his work half done, in order to meet other engagements. To make his visits effective in the highest degree requires time and patience. The length of his visit must depend upon the necessities of the school, and of these he must be his own judge. An ideal system of supervision would give one supervisor from fifty to seventy-five teachers to supervise. Where the number of teachers is greater some will be neglected, for a supervisor generally has many interruptions in his work, such as rainy days, holidays, and the demand upon his time for office work, board meetings, committee meetings, public addresses, etc., so that it is impossible to put in every day in supervision. Allowance must be made for other important duties.

Attention is also called to the power which the supervisor can exert through rightly conducted teachers' meetings, institutes, associations, and round tables. Here he may meet the teachers under his direction, and make use of the information which he has gathered in visiting their schools. From free and open discussions by the teachers he will get an insight into their habits of thought and their methods of expression. Such meetings help break up the unsocial character of rural teachers by bringing them into contact, so that each learns something from the experience of all the others. In this way teachers and supervisors become better acquainted, gather fresh courage and new inspiration, and go home feeling that they have much in common, and that, if they will, they can in many ways be mutually helpful. The most deadening influence about the country school is its isolation. Nothing is more potent in overcoming this than frequent gatherings in which teachers, school officers, and parents freely discuss matters of common interest. To encourage such meetings is one of the duties incumbent upon

the supervisor. Without being too prominent, he may still be the inspiring spirit, guiding, directing, and stimulating the tone and energies of all who participate in the proceedings (Appendix P).

LEGAL REQUIREMENTS AND QUALIFICATIONS.

The necessity of establishing some qualifications to be required of those who are to occupy the position of supervising officer is emphatically insisted upon.

"If it is desirable to insist upon a certain degree of qualification for a school-teacher in the humblest district of the State (this proposition has passed beyond the realm of discussion), it would seem that there is no question that the superior officer clothed by statute with such extended powers as a school commissioner ought to be a person possessing some fixed qualification for the performance of the duties of his office. The schools of the State will never reach that degree of efficiency which the State has a right to demand, and which is expected from the generous provision made for their support by the people, until this evil is corrected. Some standard of qualification should be insisted upon, and the power of removal in case of the election of a person not possessing these qualifications should be vested in the State superintendent." (New York State Report, 1895.)

In only seventeen States are there any qualifications, beyond that of being a resident and a voter. In some States a first-grade license is required, in others a normal or university course, and again in others he must be an experienced teacher. In a majority of the States, however, the electors are allowed to choose any person without regard to educational qualifications.

In answer to circulars of inquiry the following information was obtained regarding supervisors:

Wisconsin: By the law of 1895, must hold a university, normal, State, or special superintendent certificate.

New York: No standard of qualification.

Pennsylvania: Must hold a college diploma, or a State or local certificate; must have at least three years' experience in teaching.

Michigan: Must be a graduate of a reputable college, university, or State normal college, or must hold a State or first-grade certificate.

Mississippi: Must hold a first-grade certificate.

Texas: Must be a person of educational attainments and hold a first-grade teacher's certificate.

Tennessee: Can be appointed only from applicants who pass an examination on questions sent out by State board.

Georgia: Must pass a satisfactory examination.

Louisiana: Must have a common-school education.

Montana: Must hold a first-grade certificate and have one year's experience as teacher.

South Carolina: Must be able to conduct a teachers' institute.

Kentucky: Must be able to obtain a first-class teacher's certificate, hold a State diploma, or State certificate.

Arkansas: Must have a first-grade certificate.

Maryland: The county school board may require applicants to be examined by the State superintendent.

Utah: Must have a valid certificate not lower than the grammar grade.

West Virginia: Must be skilled in the art of teaching.

Iowa: First-class certificate, good for two years, a State certificate, or a life diploma.

It is unquestionably true that a supervisor should be as well and as highly educated as the better teachers he supervises. He should be a man of broad and generous culture, a lover of good books, versed in the best literature of the day, one whose presence is an influence for good, and whose words are an inspiration.

the State of Maine. The whole matter turns upon the simple point that we are alarmingly wasteful in our expenditure of school money.

Personally I am in favor of local communities being responsible for providing school buildings. I think two-thirds of the funds required for the maintenance of the common schools should be furnished by the State, and that the other third should be raised by local taxation; that the State should examine all teachers and issue all licenses to teach; that towns thus receiving State aid must employ teachers who hold such certificates. The State should inspect the school accounts of the towns receiving State aid.

The subcommittee deems it advisable, now that the whole ground has been covered, to restate the fundamental propositions that have been urged in this report. These all start from the one central postulate that a provision of funds sufficient for their adequate support is essential to the existence and life of good schools. The threefold division of the subject will be preserved in the summary.

I. REVENUE.

1. The great resource of the public schools is, and must continue to be, some form or forms of public taxation.

2. Such areas or units of taxation should be created, or continued if already in existence, as will fully develop the sound American principle that the whole wealth of the State shall be made available for educating all the youth of the State.

3. To accomplish this end, resort must be had to the larger units of taxation, especially where population is sparse and wealth meager. The following recommendations must be specifically urged: (1) A liberal provision of funds from the State treasury; (2) a county tax in at least all the county-system States; (3) a town or township tax in the States where this civil division exists; (4) taxes in special districts; that is, in cities and villages. The school district, in the commonly accepted sense of that term, is not a desirable taxing unit, but quite the contrary, and should be abolished as such unit.

II. DISTRIBUTION.

1. Funds raised by the large political or social units for general school purposes should be distributed in such a way as to bring the rich and the strong to the help of the poor and the weak.

2. Such rules of distribution should be adopted as will accomplish this end. In order to do this, distribution must be based, to a certain extent at least, upon fixed or arbitrary units; that is, so much money must be given to the school or to the teacher.

3. The large taxing units should render assistance to the small ones only upon the condition that the small ones first do something for themselves.

III. ORGANIZATION.

1. In the States where the town or mixed system of local government exists, the town or township school system should, as far as practicable, be substituted for the district system; in the county-system States the county-school system is the natural alternative to the district system.

2. In those parts of the country where existing physical and social conditions render it practicable, there should be such a consolidation of rural schools as will diminish the existing number of schools, schoolhouses, and teachers, and bring together, at advantageous points, the pupils who are now divided and scattered among the isolated schools of the township or other similar districts.

3. There is urgent need of lengthening materially the time that the country schools, on the average, are in session each year. The ideal should be a minimum school year in every State of at least one hundred and sixty or one hundred and eighty days.

The subcommittee does not expect to see, and does not desire to see, the school systems of the country all brought to one uniform pattern. It is too well aware of the great diversity of conditions that exist to think such a thing is possible. Even more, a certain variety, and so conflict, of systems is conducive to life, activity, and improvement. Neither is the subcommittee under any illusions as to what is possible, or probable, in a field of education so vast as that offered by the United States, with the great number of authorities, State and local. At the same time there are certain general laws governing successful school systems and schools that can not be ignored. Some of the principal of these laws have been set forth above; and it is believed that their general recognition will be followed by a marked improvement of the common schools, and so of the popular education of the country.

Some persons may ask, "How shall the principles laid down in this report be made practical?" "How shall they be established in communities or States where they do not exist, or exist only in part?" To these questions only a general answer is needed. The State legislature, the lawmaking authority, is the only source of power in relation to education, as well as in relation to all other branches of the State government. Accordingly, if the school law is defective and weak, the legislature must be called upon to repair and strengthen it. No progress can be made without an efficient law and efficient school authorities.

But how shall the legislature be induced to act in the premises? In precisely the same way that it is induced to act in other matters. Facts, arguments, persuasion, must be addressed to the members of the legislature. Above all it is important that the public mind shall be informed as fully as possible upon all branches of the subject. If the people generally knew how much better schools they might have than those that they do now have, and for no more cost, it is impossible to believe that they would not bestir themselves to effect reforms. The subcommittee marks out what it believes to be broad lines of educational progress. It enforces its views, as far as possible, with appropriate arguments. But it must necessarily leave the application of these views and arguments to the exigencies existing in particular communities or States to such persons, belonging to these communities or States, as are interested in the subject and are familiar with all the local facts and conditions.

B. A. HINSDALE, *Chairman.*
W. S. SUTTON.
S. T. BLACK.

REPORT OF THE SUBCOMMITTEE ON SUPERVISION.

The subcommittee on supervision of rural schools has taken into careful consideration the various topics submitted for investigation. Its inquiries have extended into all the States and Territories except Indian Territory and Alaska, and the facts are based on returns more or less full from all parts of the country.

Professional supervision is to-day regarded as an essential factor in our school system. It has been observed that the schools that are closely supervised by men who thoroughly know their business at once respond to the influence of this supervision. Expert supervision has resulted in systematic, orderly, and well-directed instruction. It is a matter of remark that the most competent superintendents have the best schools, and that cities noted for their excellence in school work have attained this preeminence through the medium of intelligent supervision. This is also true of those counties which have come under the same influence.

"There is no other agency in our school system that has done so much for the improvement of our schools in organization, and in methods of instruction and discipline, as the superintendency."

The attention of the profession, however, has been mainly directed toward

expert supervisions in city schools, and but little heed has been paid to the demand for such work in rural districts. It is quite time that our inquiries should be directed toward the character of the supervision demanded by the country school. If supervision through a competent superintendent is a good thing for city schools, there is every reason why it would be a good thing for rural schools.

STATE SUPERINTENDENT.

Although the State superintendent stands at the head of the public-school system of the State, his work is more closely related to rural than to city schools. As this report has reference only to the conditions of rural schools, your subcommittee will consider the duties of this officer as bearing upon that part alone of the general school system. No officer connected with the administration of State affairs requires higher or more essential qualifications than that of superintendent of public instruction. He should be a man of high moral character, well acquainted with approved methods and with the history and condition of education in his State. He should be in close touch with the educational spirit of the times, and should be one whom the profession regards as authority in all that constitutes excellence in school matters. It is also agreed that he should be an experienced teacher, of broad and thorough scholarship, and a good public speaker. With these qualifications there should be combined a large share of good common sense, and sufficient executive ability to manage the details of his office.

The legal term of office in Massachusetts and Rhode Island is one year. In Connecticut it is at the pleasure of the State board. In twenty States the term of office is two years; in four States, three years; in seventeen States, four years; but in no State does it exceed four years. The average length of term of the State superintendent is two years and ten months. The lowest salary paid is $1,000 and the highest $5,000 per year. The average salary is $2,475 per year. In answer to the question as to how much time the State superintendent devotes to supervision of schools, we had definite answers from thirty-seven States, in which we find that nineteen of these superintendents devote more than half of their time to visiting schools and traveling in the interest of education, and eighteen devote less than half their time. Quite a number of the State superintendents report that they divide their time equally between the office work and supervision. In only a few of the States does the State superintendent exercise no supervision, and in several the supervision is carried on through deputies or agents.

The State superintendent under present arrangements has but little time for personal inspection of school work. The superintendents in fourteen States visit each county once a year and in eight States once every two years. From the other States no definite information could be obtained. Many superintendents say, as often as practicable; in some instances, not at all. Our information is to the effect that most of the State superintendents devote as much time to supervision as they can spare, but that it is generally considered secondary to work of a clerical nature. There are undoubtedly in some States sections which have never been visited by the State superintendent or his deputy.

By some means the influence of the State superintendent should be extended until it reaches every rural school in the State. In all possible ways the office should be made useful to the teachers and school officers. The rural schools need this stimulating, helpful influence more even than those of the city. While in most States the office has but little more than advisory powers, yet, through lectures at associations and through the inspection of institutes, the State superintendent ought to be able to convince the teachers of rural schools that he is in close sympathy with their work.

The work of the State superintendent ought to be made more effective by so increasing his clerical force as to enable him to spend more time in direct contact

with the schools and school officials of the State. The careful compilation of statistics is very important, but it can be intrusted to a skillful statistician, while much of the routine work of the office can be well done by clerks. The higher and by far the more important work of directing educational movements, of instructing the people, and of creating public opinion and arousing public interest devolves upon the State superintendent. There is a general demand for more assistance in his office, longer tenure of service, and more liberal financial support. His work should be so related to that of the superintendents in the various subdivisions of the State for school purposes that the whole may be properly articulated, and the county or town superintendents be under his direction and control. He should come in frequent contact with them by conventions held for the purpose of instructing them in their particular duties, and should send them such circulars and letters as may be necessary to aid and direct them in their work.

The State superintendent should have the power to withhold the State appropriation from all counties or school districts not complying with the law in every particular, because he would then hold the key to the situation and could enforce his orders.

The main duties of the State superintendent are not only to organize and direct educational influence and laws already existing, but also to go among the people in the spirit of Horace Mann, and, by public addresses, by the liberal use of the press, and by securing the assistance of the leading men of the State, to arouse and keep alive an interest in the cause of popular education. In connection with the rural schools especially the State superintendent not only has great possibilities for a wise supervisory influence, but also great opportunities to arouse and instruct the people.

In a majority of the States the most needful legislation is that which bears upon the organization and maintenance of rural schools, and a supply of competent teachers for the same. The State superintendent, therefore, should be a man able to secure the cooperation of the legislature for the enactment of proper statutes. This can be done only by one who sees clearly the great needs of the school system, and who is able to go before the people and the legislature and unite all influences to obtain the necessary legislation. While putting into this high office any person solely through his political affiliations is to be deprecated, the State superintendent should be a man who knows how to approach the leaders of all parties and convince them of the justice and soundness of his plans, viewed from the high vantage ground of the general good.

COUNTY, TOWNSHIP, OR DISTRICT SUPERINTENDENT.

A still more important question opened for discussion is the character and degree of supervision below that of the State superintendent.[1] Thirty-eight States, mainly in the South and West, have county superintendents, whose duty it is to visit the schools and exercise the duties usually belonging to their office. The New England States generally have what is known as township or district supervision, which arises in large part from their political organization. In New England the town is the dominant political unit, while in the South and West it is the county. The simplicity and effectiveness of supervision are promoted when the units of political organization and of school administration are identical. This condition has its limitations, however, in the amount of territory to be covered and in the density of population, which is a varying quantity. The main point is to bring every rural school of the country as far as possible under the watchful care of a competent supervising officer. Responsibility is a strong

[1] In this report the term "supervisor" is used to include also county superintendent, commissioner, or any other term by which the supervising officer of a county or supervisory district is usually designated.

stimulant. It is one of the weak points in our present system that too often the rural school-teacher is responsible to no one.

In regard to the operation of the two principal methods of supervision, there is no reason why any section should abandon the practice which has been found best adapted to its peculiar conditions. It must be conceded, however, that a single township, containing on an average ten or twelve schools, is too small a territory to engage profitably the entire attention of one person. In such a case one of two things must necessarily happen: Either the schools are supervised to the point of interference, or the supervision becomes uncertain, feeble, and unsatisfactory. In a general way, the rural township is too small a supervisory unit. Wherever it has been tried the supervisor has generally had some other business to attend to, and thus his work has been found wanting in those results which are most desirable. In order that the work of overseeing and directing may be effective, it must engage the entire time and the best thought of the supervisory officer.

A proper remedy for this is the combination of towns for supervisory purposes. Three, four, or five towns could be united in one supervisory district until a sufficient number of schools have been secured to engage the entire attention of one good man. The burden of his salary could be borne by these towns in the proportion of the number of schools they contribute to his work. This plan is in operation in Massachusetts, and has been satisfactory. A complete exposition of the Massachusetts plan of supervision of township schools is found in A. W. Edson's monograph, "Supervision of schools in Massachusetts." (Boston, 1895).

In that State 253 of the towns are supervised by 155 supervisors. While some of the large towns can alone support a supervisor, several of the smaller ones must unite to secure the services of an efficient officer. In addition to what the towns do for themselves, the State grants to those of low valuation, when they combine into a supervisory district, the sum of $750 to pay for a supervisor. These towns, however, are required to raise an additional sum equal to that furnished by the State, thus insuring a sufficient sum for the employment of an expert schoolman. By these means 93 per cent of the children of Massachusetts have been brought under close supervision. The salary paid to a supervisor is at least $1,500 a year, and he is enabled to devote all his time to the work and to inspect each school once a month. It is true that there are still about one hundred towns in Massachusetts without supervision, yet the feasibility of cooperative supervision with aid from the State is proven beyond all doubt.

"The State aid to a district amounts at present to $1,250—$750 toward the superintendent's salary and $500 toward the salaries of the teachers. The remainder of the superintendent's salary, $750, must be raised by the towns of the district. They are at liberty, of course, to raise more than $750 for the purpose, if they desire to do so." (Massachusetts State Report, 1895.)

What has been said regarding the combination of towns for supervisory purposes can be repeated with equal emphasis as to other small divisions of territory termed "school districts." The same principle applies here as elsewhere, that the interests of the schools included in a given territory should be sufficient to warrant the employment of a thoroughly competent person at such a salary as would justify devoting his entire time to his work. After all has been done, there will still be vast sections of country, especially in the West and Southwest, without any means of efficient supervision. No present remedy can be devised to aid them. It can be safely left for the several States, as population increases, to look after the interests of the schools in the light of the experience of older communities about them.

The worth of the county superintendency is acknowledged, but in many cases the county is too large an area and contains too many teachers for one man to properly supervise. The county is as much too large a unit for supervisory purposes as the township is too small. This remark, however, does not apply to every

county nor to any one State. In counties where the number of teachers is too large for one man to supervise the county superintendent should have one or more assistants or deputies to aid him in his work. They should be directly responsible to him for the kind and character of their work, and should be charged solely with supervisory duties. The importance of having one superintendent for the county or district to whom other supervisors are responsible must be emphasized, as it would be an error and a fruitful source of strife if in any territory there should be two or more supervisors having concurrent jurisdiction.

THE COUNTY UNIT.

Since this report is a symposium of suggestions for supervising rural schools, it may not be amiss to discuss a plan of supervisory organization that has found favor in some few counties that contain large cities as well as a rural population. We mention it here because it has valuable features for supervising the rural schools. There is but one school board for the entire county. One set of men legislates for the whole area, and it is their duty to relate the urban and suburban and rural schools into a sympathetic system. This is based upon the idea that every city is bound to respect the people that immediately environ it. It is to the interest of a large city to have good roads leading to it, good crops in the fields around it, and good schools to which the farmers may send their children.

With this as a foundation principle there is but one school fund for the entire county, raised by taxation upon all property in the county, whether it be in or out of the city. This makes the general school fund, which is distributed upon the basis of school population and according to the needs of the city wards and the rural communities. The same qualification for teachers is required whether they teach in a city graded school or in a country ungraded school, and the same salary is paid to them and in the same way and for just as long a term. In this system one superintendent is in charge of the whole area. He looks after a city graded school one day and the next day may be 20 miles away inspecting a country school. Expert supervision by a superintendent and his assistants is thus extended into the rural districts, and both city and country school receive the benefit of what there may be in each that is of real value.

Upon this plan, as a matter of course, a large portion of the school fund raised by taxation on city property is annually distributed to the country schools. The city is really made to assist in supporting the rural schools around it. And who shall say it is not a good thing for the city to do, especially in agricultural sections, in which the education, liberal and special, of the farmer's child is the probable salvation of the farming interests of the country? We should not lose sight of the truth that the farmer's child is to be made a useful citizen, not only content to stay in the home in which he was born and reared, if that is best, but fitted to fill honorably any station in life to which he may be called. To do this he must have all the opportunities of education and culture that the city affords. This can be brought about in no other way than at the city's expense, for wealth is massed in our populous centers. The expert supervision, the well-trained teacher, the long term, the modern text-book, the good schoolhouse, can be placed at the farmer's door by the agencies of the neighboring city, that owes him this and much more (Appendix D).

TRAINED TEACHERS NEEDED IN COUNTRY SCHOOLS.

Supervision is one of the vital needs of the rural schools, since most of their teachers are inexperienced. The number of normal-school graduates in rural schools is lamentably small. The reason is that the normal-school graduate can obtain a better salary by teaching in a larger field. The demand for this class of teachers makes their salaries so high that the country schools can not afford to employ them. As soon as teachers become proficient by reason of experience

acquired in rural schools, the probabilities are that they will be induced to seek better positions in cities where their experience and abilities will command higher salaries.

Add to this the other fact that many young men begin to teach as a stepping-stone to some other profession, and while they are teaching a country school are studying law or medicine, and their hearts are with that rather than with teaching; and also add that many young girls teach until they marry, or as long as they are compelled to teach, and no longer; that they have no real love for their work and no wish to stay in it, and we see how the problems multiply.

Rural schools suffer from lack of trained teachers. In them, as a general thing, are young graduates from the village high school, or some favorite among neighborhood families, or a type of ancient teacher whose placid life is not disturbed by the vexing problems of his profession. This raw material must be developed, made shapely, orderly, and systematic, if time is to be saved to the children, and schools properly supported. A bright and live supervisor will bring order out of confusion, harmony out of discord, and will give life and beauty to that which before was inert and ungainly.

Teaching is a great art, based on a profound science. The supervisor is the expert who has given this art and science his careful attention and whose business it is both to know how to teach and to show others the way of teaching. He can in some measure compensate for the lack of skilled work in the school by closely supervising and guiding inexperienced teachers and showing them what to do. An expert is one who possesses skill gained by practice. A supervisor who claims to be an expert should have experimental knowledge of "the how to teach." He is supposed to have given careful attention to those things which characterize a good school. Not only must he know how to teach, but he must know how to instruct others in the art and science of teaching. He must be a skilled teacher of teachers. Without this directing spirit, schools must necessarily suffer until teachers happen upon some better way. It is a great misfortune for schools to wait for wisdom in teaching until the many mistakes of teachers have pointed out better methods. The presence of skilled supervision has been the salvation of many schools.

It is one province of supervision in the country school to bring teachers into contact with each other, to illustrate better ways of teaching, to break up the isolation and monotony of rural school life, and to take to the doors and homes of people and teachers alike the life and freshness which have been the result of research and study on the part of the best minds in the profession. The province of supervision in rural schools falls far short of its legitimate purposes when it begins and ends in the schoolroom.

This point is not sufficiently well appreciated by those who have the oversight and care of schools scattered over a large tract of territory. Country schools have an environment of their own which should neither be forgotten nor ignored. The best supervisory work is that which brings into the rural school everything in farm and rural life which is strong and pure and wholesome. It is possible for the supervising officer so to exert his influence as to give grace and dignity to each individual school and make it the rallying point for every good influence, a blessing to the entire community in which it is situated.

Attention is here called to the fact that in general but little care is taken in the selection of officers chosen to look after the interests of the rural schools. In the majority of States the county superintendents are elected by the people of the county without any regard to the preparation or qualifications they may have for the work. Very few States require the superintendents to have any special qualifications, and in many instances supervisors are put in charge of teachers who know more about teaching than they do, and are required to hold examinations that they themselves could not pass. Add to this the fact that the superintend-

ents are generally paid very small salaries (average, $828 for the whole country) or a meager per diem, and that many engage in other business and regard supervision of schools as an incidental matter, and it becomes apparent that professional supervision is too often the exception rather than the rule.

WORK OF SUPERVISORS.

We need everywhere trained superintendents of schools. "Supervision of schools should rank next in importance to the instruction in schools; indeed, so necessary to successful instruction is competent supervision that the two should receive together the watchful oversight of the State" (New Jersey State Report, 1894). Supervisors should know as much of teaching as the teachers under them, and should be able instinctively to distinguish good teachers by their manners, dress, speech, disposition, and character. The best work of a supervisor is his skill in selecting teachers. Not by the results of examination alone, for some learned people make poor instructors; not by yielding to the pressure of family or political influence, for this will ruin any system of schools; not by selecting his own friends or favorites, for this is unworthy of his office; but by following the knowledge that comes to him through study, by long experience, by careful observation, and by conscientious conviction, which enables him to know a teacher when he meets one, though he may not be able to tell why.

Teaching is a matter of both disposition and knowledge. The former can not be examined, but it ought to be recognized; careful supervision will aid in developing it. Skill in doing this is an essential characteristic of a good supervising officer, especially in connection with rural schools. If the cry is raised (and it is) that there is not enough money to pay for professional supervision, the reply is that it would be wiser to have fewer teachers in order that those employed might be better qualified. A supervisor who is an expert can so arrange and organize the system that a less number of teachers can do the work and do it better, because each one is thoroughly competent. "A good superintendent earns many times his salary; a poor superintendent is too dear at any price. The work of supervision may be unsatisfactory either because the number of schools is too large for the oversight of one person, or because the supervising officer lacks the talent for molding, inspiring, and directing the work of others" (Pennsylvania State Report, 1895). Underpaid supervision is often unskilled and inefficient, and against this we raise our decided protest. Such supervision is of no value whatever to the schools—a penny-wise policy that economizes in the wrong place. A supervisor should have no other business than to care for the schools. He should not be a merchant, nor a lawyer, nor a farmer, nor an active teacher. His business should be to supervise the schools of his county, or township, or district, or whatever his area be called.

With a given sum of money for school purposes, to devote a part of it to skilled supervision will bring more children under enrollment, better teachers in the community, better instruction in the schools, and more satisfaction to the people, than if all the money were spent in paying the salaries of teachers.

In twenty-eight States the supervisors are required by law to visit each school twice a year, in the other States they are allowed to visit the schools as often as practicable. In one or two States the supervisors visit the schools very seldom. The length of time the supervisor spends in each school varies from fifteen minutes to one-half day. The time seems to depend very largely upon circumstances, the number of pupils, the character of the teacher, the efficiency, and the pay of the supervisor. A skilled supervisor inspecting an intelligent teacher can do more service in fifteen minutes than an unskilled supervisor visiting a poor teacher can do in a whole day. The average time spent in the ordinary rural school by the school supervisor is about one hour every year.

In twelve States the supervisors devote all their time to the work. In these

States the average salary is $1,002 a year. In fourteen States the supervisors devote only a part of their time to supervision, with an average annual salary of $408. Sixteen States report that in some counties the supervisors devote all their time to supervision, while in other counties the supervisors devote but a small part of their time to that work. In these States the salaries paid supervisors vary from $100 to $2,000 or $3,000 a year. Where good salaries are paid they devote all their time to supervision. Where small salaries are paid they devote but little time to this special work. All States have some supervision, though it varies greatly in amount and in efficiency.

In many sections of the country a supervisor not capable of suggesting to teachers better methods of teaching and not able to detect false methods pays only a perfunctory visit to the schools. He merely sees whether the building is clean, whether the children look bright and interesting, whether the enrollment is good, such facts as would be noticed by any person of ordinary common sense. Too often the contact of the average supervisor and the teacher of the rural schools is nothing more than a mechanical business performance, with such elements of aid and encouragement as any intelligent visitor may give the school. Although this is not without advantage, it falls far below the standard of professional supervision.

How many teachers a supervisor can direct can not be discussed except in a general way. Schools are more widely separated in some localities than in others, roads are better, teachers are better, and supervisors vary greatly in the rapidity with which they work. As a general rule, however, every rural school ought to be visited at least once in two months. Supervision can not be called close that does any less than that, and it would be better if the schools could be visited once every month.

No accurate information can be gained concerning the conditions of the school, nor can the proper influence be exerted over teacher and pupils, unless the supervisor has time at his disposal to make a reasonably thorough examination of the school and its surroundings. Sometimes, with an inexperienced teacher, he may find it necessary to spend the entire day in the school, while in other cases he may be able to visit two or more schools in one day. The point is that he must not feel compelled to shorten his visit, or to leave his work half done, in order to meet other engagements. To make his visits effective in the highest degree requires time and patience. The length of his visit must depend upon the necessities of the school, and of these he must be his own judge. An ideal system of supervision would give one supervisor from fifty to seventy-five teachers to supervise. Where the number of teachers is greater some will be neglected, for a supervisor generally has many interruptions in his work, such as rainy days, holidays, and the demand upon his time for office work, board meetings, committee meetings, public addresses, etc., so that it is impossible to put in every day in supervision. Allowance must be made for other important duties.

Attention is also called to the power which the supervisor can exert through rightly conducted teachers' meetings, institutes, associations, and round tables. Here he may meet the teachers under his direction, and make use of the information which he has gathered in visiting their schools. From free and open discussions by the teachers he will get an insight into their habits of thought and their methods of expression. Such meetings help break up the unsocial character of rural teachers by bringing them into contact, so that each learns something from the experience of all the others. In this way teachers and supervisors become better acquainted, gather fresh courage and new inspiration, and go home feeling that they have much in common, and that, if they will, they can in many ways be mutually helpful. The most deadening influence about the country school is its isolation. Nothing is more potent in overcoming this than frequent gatherings in which teachers, school officers, and parents freely discuss matters of common interest. To encourage such meetings is one of the duties incumbent upon

the supervisor. Without being too prominent, he may still be the inspiring spirit, guiding, directing, and stimulating the tone and energies of all who participate in the proceedings (Appendix P).

LEGAL REQUIREMENTS AND QUALIFICATIONS.

The necessity of establishing some qualifications to be required of those who are to occupy the position of supervising officer is emphatically insisted upon.

"If it is desirable to insist upon a certain degree of qualification for a school-teacher in the humblest district of the State (this proposition has passed beyond the realm of discussion), it would seem that there is no question that the superior officer clothed by statute with such extended powers as a school commissioner ought to be a person possessing some fixed qualification for the performance of the duties of his office. The schools of the State will never reach that degree of efficiency which the State has a right to demand, and which is expected from the generous provision made for their support by the people, until this evil is corrected. Some standard of qualification should be insisted upon, and the power of removal in case of the election of a person not possessing these qualifications should be vested in the State superintendent." (New York State Report, 1895.)

In only seventeen States are there any qualifications, beyond that of being a resident and a voter. In some States a first-grade license is required, in others a normal or university course, and again in others he must be an experienced teacher. In a majority of the States, however, the electors are allowed to choose any person without regard to educational qualifications.

In answer to circulars of inquiry the following information was obtained regarding supervisors:

Wisconsin: By the law of 1895, must hold a university, normal, State, or special superintendent certificate.

New York: No standard of qualification.

Pennsylvania: Must hold a college diploma, or a State or local certificate; must have at least three years' experience in teaching.

Michigan: Must be a graduate of a reputable college, university, or State normal college, or must hold a State or first-grade certificate.

Mississippi: Must hold a first-grade certificate.

Texas: Must be a person of educational attainments and hold a first-grade teacher's certificate.

Tennessee: Can be appointed only from applicants who pass an examination on questions sent out by State board.

Georgia: Must pass a satisfactory examination.

Louisiana: Must have a common-school education.

Montana: Must hold a first-grade certificate and have one year's experience as teacher.

South Carolina: Must be able to conduct a teachers' institute.

Kentucky: Must be able to obtain a first-class teacher's certificate, hold a State diploma, or State certificate.

Arkansas: Must have a first-grade certificate.

Maryland: The county school board may require applicants to be examined by the State superintendent.

Utah: Must have a valid certificate not lower than the grammar grade.

West Virginia: Must be skilled in the art of teaching.

Iowa: First-class certificate, good for two years, a State certificate, or a life diploma.

It is unquestionably true that a supervisor should be as well and as highly educated as the better teachers he supervises. He should be a man of broad and generous culture, a lover of good books, versed in the best literature of the day, one whose presence is an influence for good, and whose words are an inspiration.

roundings of the schools of which he is to take charge. If the new departure ich seems to be at hand in rural-school education is to be a success, it must carefully conducted in reference to those environments which are peculiar to h section. The supervisor who is to have a controlling influence in choice of t-books, in courses of study, in the selection and use of libraries, should be oroughly conversant with the physical characteristics of his district, with the erests of the people, with their sources of wealth and living, and with the home e of the children (Appendix O). Whether it be a mining or a grazing region, hether agriculture or horticulture predominates as an interest, he should make imself at home in that domain of science or knowledge which will increase his efulness as a school officer.

THE HOME AND THE SCHOOL.

The parents of children need instruction as well as the children themselves. The home influence and the school influence should be harmonious, or confusion and uncertainty will arise in the child's mind as to what he should do. The people must be reminded that the school is an integral part of the community, and not a separate affair which the law compels them to support and which takes their children away when their assistance on the farm is most valuable (Appendix O).

In establishing the true relations between the home and the school, between the necessities of physical and those of intellectual education, the supervisor of rural schools finds an unlimited field of usefulness. In rural districts parents are often ignorant of the advancement education has made since the days when they went to school, and they are often too ready to criticise anything new. The supervisor must gain their confidence, so that they will yield their ideas to his and allow the teacher in their school to follow his directions without any hindrance from them.

The supervisor can exert a wonderful influence in bringing the fireside to the support of the teacher. To do this he must be able to educate the people concerning their relation to the school, as to sending the children regularly, as to providing necessary material, such as books, etc., as to allowing every teacher to pursue those methods of teaching which his skill and experience suggest as best suited to the wants of the school. At meetings of agricultural clubs, at town rallies, at educational "barbecues," at commencements, at spring festivals, at farmers' institutes, he should embrace every opportunity of saying a word for the schools, in order to arouse the people and interest them in the whole system of education. The columns of the country paper afford the supervisor a very ready means of reaching the people. Almost every farmer takes the county paper, which, coming weekly to his fireside, gives the news of the outside world and the doings of his neighbors. School news is an important item and should never be omitted. Every week the paper should contain something of educational interest from the pen of the supervisor, though not always over his signature—suggestions for improvement, statistics of enrollment and attendance, new and better ways of teaching, plans for schoolhouse construction and decoration. The press is valuable to every teacher and helpful to the system of education by bringing farmers into sympathy with the great educational movements of the world. The press gives a larger audience, though it enforces a shorter address. But a little every week, full of variety and interest, will eventually build up a healthy sentiment in the county and educate parents as well as children.

The supervisor should have a direct or indirect control of the selection of teachers. The crisis in the history of schools is when teachers are to be chosen. No one is so well qualified to choose them wisely as a faithful supervisor, and no one is more likely to do so conscientiously, since he knows the value of efficient teach-

To require him to be in every case a graduate of some higher school would be unreasonable, perhaps, but he should be a friend of higher education in every sense of the word. He must for a long time continue to be one from whom will come the influence which will lead the pupils in the rural district to strive for the highest education possible under the circumstances. His influence should be given to the establishment of rural or township high schools wherever the population will permit it. These schools should include in their courses whatever is required on the one hand for entrance to the school of the next higher grade, or, on the other, those studies a knowledge of which can be made so to change life on the farm, in its various forms, that it will become more attractive and more profitable. In the establishment and conduct of such schools the influence of the supervisor should be a very prominent factor.

A supervisor should have a thorough knowledge of school work. He should know what a teacher ought to do in managing a class of pupils of any age on any subject. This is one of the things he is paid to know. He should be an expert to whom teachers may go for advice and direction. If the advice is good and the direction wise, teachers will have confidence in the administration of the schools, and rely more and more upon the supervisor. The system is thus reduced to uniformity and becomes a source of strength. The supervisor should be able to direct teachers in their professional reading, and select wisely a library of teachers' books, and place them where they are most needed. He should know about school periodicals and be able to form his teachers into reading clubs and circles, and direct their studies. He should be able to arrange teachers' meetings so that time will not be wasted, and that teachers will come with pleasure and stay with profit. He ought to be able to aid in selecting a library suited to the wants and tastes of an agricultural community (Appendix L). In school extension he should be a leader, for he can thus make his influence felt in every part of his territory. In directing the home reading of the pupils and the people he may, if he will, find an immense field of usefulness. He can thus create and foster an interest in the welfare of the farm and the home as adjuncts to the rural schools.

He can understand and sympathize with teachers better if he has an experimental knowledge of their work. No supervisor is so good as he who climbed from the lowest rounds and knows all the steps. That this is indispensable we are not prepared to state. There are some very excellent supervisors who have but little experince in teaching, but who have seen enough and studied enough to know how it ought to be done. Experience would have been helpful, however, in understanding the limitations of their work.

First and foremost, a supervisor should be able to instruct his teachers in the methods of organization and management of schools. This is particularly the case in rural schools, where so few teachers have acquired skill in teaching. But instruction with a teacher is like instruction with a child. There must be an awakening, an arousing, a hungering after instruction. The conditions of "being filled" are that we must "hunger and thirst." The supervisor must inspire his teachers with a desire for better things. He should lead them to see that time is precious, and that the children in school this year may be on the farms next year and no more in school forever. They must know what to do and do it. The supervisor should be a source of inspiration. His corps of teachers must be alive and eager and studious. The thing most to be abhorred in school work is the teacher dead to advancement in professional studies. The supervisor must rouse teachers to work out for themselves plans and methods for building up their schools, and must set forth the principles which should control them in their work.

The county superintendent, or the supervisor of schools in any rural community, should have had recent experience in the schools which he is to supervise. In cases where this is not possible he should make a careful study of the peculiar

surroundings of the schools of which he is to take charge. If the new departure which seems to be at hand in rural-school education is to be a success, it must be carefully conducted in reference to those environments which are peculiar to each section. The supervisor who is to have a controlling influence in choice of text-books, in courses of study, in the selection and use of libraries, should be thoroughly conversant with the physical characteristics of his district, with the interests of the people, with their sources of wealth and living, and with the home life of the children (Appendix O). Whether it be a mining or a grazing region, whether agriculture or horticulture predominates as an interest, he should make himself at home in that domain of science or knowledge which will increase his usefulness as a school officer.

THE HOME AND THE SCHOOL.

The parents of children need instruction as well as the children themselves. The home influence and the school influence should be harmonious, or confusion and uncertainty will arise in the child's mind as to what he should do. The people must be reminded that the school is an integral part of the community, and not a separate affair which the law compels them to support and which takes their children away when their assistance on the farm is most valuable (Appendix O).

In establishing the true relations between the home and the school, between the necessities of physical and those of intellectual education, the supervisor of rural schools finds an unlimited field of usefulness. In rural districts parents are often ignorant of the advancement education has made since the days when they went to school, and they are often too ready to criticise anything new. The supervisor must gain their confidence, so that they will yield their ideas to his and allow the teacher in their school to follow his directions without any hindrance from them.

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ers. This control can be given him directly or indirectly. If he does not wish to have the direct choice in individual instances, the same may be accomplished by giving him the power to examine and license teachers for his supervisory district. No one, then, can be selected by the board of directors except such as are approved by him. He prepares an eligible list to which the board is limited in making its choice. If the superintendent is conscientious and courageous in the preparation of this list, he can safely leave the responsibility of the individual appointments to the board.

In many cases the questions for such examination are prepared at the State office. In some instances the county board conducts the examinations, and in a few the answer papers are sent to the State office for final examination and approval or rejection.

The supervisor should be slow to condemn a teacher who is honestly striving to succeed, but if, after faithful and earnest effort, teachers clearly prove that school-teaching is not their vocation, or, after repeated warnings, teachers will not try to do the right kind of work, it is clearly the duty of the supervisor to report the facts to the directors, and his report should be given great weight by them. The power to revoke the certificate is usually in the hands of the supervisory officer. It should be exercised with great caution and deliberation, but fearlessly whenever there is sufficient reason for it.

Since the supervisor is responsible for school methods and for results in teaching, the arrangement of the course of study and the selecting of the text-books should be largely, if not entirely, left to his direction. It is his particular business to know books as well as to know teachers. It is not to be expected that the men who constitute the ordinary "committee on text-books" and whose daily business has no relation whatever to school texts and their use, can decide what book is best for use in the schoolroom. It is very well to have a committee on text-books composed of the members of the board, to prevent possible abuse, but the advice of the supervisor should have much influence in determining the character of the books used in the schools.

SCHOOL DIRECTORS.

It is important that the relations between the supervisor and the school officers should be clearly defined. The directors[1] stand much nearer the people and have an immediate interest in the welfare of the schools. They contract with the teachers, care for the financial affairs of the district, purchase supplies, and are charged with the general business management.

The success of the school depends very largely upon the kind of men who are elected to that office. In the rural districts especially the duties of the director are mainly of a supervisory nature. He should inspect frequently the schoolhouse and school premises; he should see to it that everything is provided which is necessary for the comfort and convenience of both teacher and pupils, that the outbuildings are in a decent condition, and that the supplies are used with due regard to a wise economy. In the discipline of the school he should give a strong moral support to the teacher, and his influence should at all times be on the side of order and obedience. The board of directors should make such rules and regulations for all the schools under its control as it deems necessary for the preservation of school property, for securing punctuality and regularity, and for the general welfare of all concerned, and it should support the teachers in their rigid enforcement. It should be in constant correspondence with the supervisor, so as to keep him informed respecting the progress of the school, and in case a teacher is derelict in his duties, or if for any reason the school needs a special visitation, it should

[1] Director includes whatever term is used to designate the local school officers in any State, as director, commissioner, school committee, trustee, etc.

inform him at once. On the other hand, it should be the aim of the supervisor to establish the most cordial and intimate relations with the local directors. The supervisor should magnify the office of the director. Whenever he visits the school, he should, if possible, induce the director to go with him. If at such visits they inspect the condition of the outbuildings and the premises, the supervisor can often propose plans for the improvement of the buildings which the director will more readily appreciate and approve.

The inspection of a school by a competent supervisor is an object lesson of importance to the director. He is able to see at what points the supervisor is aiming, and he learns something of his ideas and plans. He will thus be better able to counsel and advise the teacher in the frequent visits which he makes to the school and make more intelligent and specific reports to the supervisor. The practice on the part of the supervisor of calling the directors together at stated times for mutual conference is very commendable. These officers are often ignorant of their duties, but in a large majority of cases they are willing and anxious to learn. There is no more effective way of improving the rural schools than that of instructing and informing the men who have them in their immediate charge. No doubt large sums are lost to the various funds through carelessness on the part of treasurers and secretaries in the rural districts in keeping their accounts. The supervisor should make it his duty to audit these books at least once each year, with a view to accuracy of statistics and economy in expenditures, and this should be one of his duties under the law.

THE VISITATION OF SCHOOLS.

The supervisor's method of visiting schools may be considered briefly. First, he visits schools to see how and what the teachers teach, whether their manner is composed, their method clear and concise, their style interesting; whether they are teaching valuable facts or wasting time on trifles; whether they are teaching what is right or what is wrong. Second, he goes to find out what the pupils know. This is a test of the past work of teachers, which is shown by the general manner of recitation, the promptness with which pupils reply, the amount of information they have, the degree of skill they manifest, or the power of original thinking they have developed. Third, he inspects the physical conditions of the school building and grounds. He should note the condition of the outbuilding, and if he finds them unsuitable in any respect, he should say so frankly to teachers and directors, and insist upon a change at once. The supervisor must know whether good light, good seats, proper temperature and ventilation, and thorough drainage are secured. The supervisor should carefully observe the moral atmosphere which surrounds the school, whether it is on the side of order and obedience, of modesty, and of all those virtues which make the character of the typical American citizen. All these are demanded in order that good teaching may be made possible, and good health and public morals may be preserved.

Such being the purpose of the visit, the supervisor should put himself in easy and cordial relations with the teacher and the pupils, that he may have a true understanding of what each can do. The teacher may conduct one or more recitations in the various subjects of study, in order that the supervisor may see the usual methods of instruction. The supervisor can then suggest improvements if needed, and can even take the class in hand and demonstrate them. That he should ask for a class in any particular study and give the pupils a rigid oral or even written review, while the teacher may be attending to some other duty, is proper, for by this means he can find out how much instruction has been given since his last visit and how thoroughly the course of study is being adhered to. It is, however, often best to allow the teacher to pursue the usual routine of exercises, in order that the supervisor may see the school at its everyday work.

An inspection of the teacher's register should not be forgotten. Such a register

in every rural school should show the name and age of each pupil, the studies pursued, where each class commenced and its progress during the term, so that a new teacher can at a glance understand at what point the study of each branch to be taught is to be taken up. The supervisor should insist that such a register be carefully kept by every teacher under his control.

A private record of his own, in which names, dates, classes heard, condition of rooms and premises, material needed, and general observations are kept, will aid the supervisor. He can by this means trace the development of any one school and can more readily observe whether it progresses or retrogrades.

SCHOOLHOUSES AND FURNITURE.

Before closing, your subcommittee desires to emphasize the proposition that the supervisor should have a controlling voice in the erection of the rural schoolhouse, as respects all its sanitary conditions. Before the contract for a new building can be legally let, the written approval of the supervisor should be necessary, certifying that as concerns heating, lighting, ventilation, and everything which conduces to the health and physical growth of the pupils, the requirements of hygienic rules and sanitary science have been carefully and fully complied with. The rural schoolhouse should be built in accordance with the laws of sanitation and modern civilization (Appendix M). It never will be until the State, speaking through the supervisor, compels it as a prerequisite for receiving a share of the public funds.

The supervisor should not be blind to the small things which minister to the comfort of the pupils. Often the rural-school teacher has received no instruction upon these points. If the supervisor finds pupils facing a strong light, he should call attention to the evils likely to ensue, and suggest a remedy. The same is true as regards unsuitable desks or seats. The necessity of proper ventilation and proper temperature should be constantly dwelt upon. Without a thermometer, with no means of ventilation except the door and windows, the rural-school teacher needs and appreciates all the suggestions an intelligent supervisor may make.

Akin to this is the suggestion that the supervisor should insist that the schoolroom be kept clean and neat for sanitary reasons. The floors should be scoured as often as they are soiled; the wood, trash, and ashes should be carefully kept away from around the stove. The walls should be swept free of dust, the chalk racks kept clean, and the window panes polished. Pupils also should be required to keep their desks in order and their books clean. It is stimulating to the little ones and helpful to teachers for the supervisor to have them show their books and to take occasion to comment on the care or on the untidiness with which they are kept.

No better educational influence can surround the children than a well-arranged schoolroom whose floors and windows are clean, whose walls are free from dust and decorated with pictures, whose school grounds are well ordered and shaded by trees and adorned with flowers, and the school presided over by a qualified teacher who is the personification of neatness and good cheer. Under such conditions the child is self-restrained and respects himself because his surroundings are respectable.

The child naturally puts himself in harmony with his environment. If the teacher is neat and the schoolhouse is in proper order, the pupil will copy the example. Day by day beautiful, comfortable, and clean surroundings will have their ethical influence upon his development, until he comes in time to abhor anything that is not beautiful, well ordered, and clean. This point is too often overlooked in plans for supervision. The reverse of this feature is also true. The rural schoolhouse, generally speaking, in its character and surroundings is depressing and degrading. There is nothing about it calculated to cultivate a taste for

the beautiful in art or nature. If, under the influence of intelligent supervision, this can be changed, it will be a work over which coming generations will rejoice.

"There is scarcely a sounder principle in pedagogy than that care begets care; order, order; cleanliness, cleanliness; and beauty, beauty. Things conspicuously good command the respect of children, invite their imitation, and in ways real, though obscure, sink into their souls and mold their being. The power of good example in men and women no one disputes, but there is power akin to it in things, provided they embody the better thoughts of men and women—a power of which more should be made in school management than is made at present." (Massachusetts State Report, 1895.)

If children are daily surrounded by those influences that elevate them, that make them clean and well ordered, that make them love flowers, and pictures, and proper decorations, they at last reach that degree of culture where nothing else will please them. When they grow up and have homes of their own, they must have them clean, neat, bright with pictures, and fringed with shade trees and flowers, for they have been brought up to be happy in no other environment. The true test of our civilization and culture is the kind of home we are content to live in, and the influences of our schools should help to form a disposition for those things that make home life happy and healthy. If the farmer's boy can be taught to love books when he is at school, he will have a library in his home when he becomes a man; if the farmer's girl can be taught decoration at school, she will want pictures and flowers and embroidery when she becomes a woman.

We appeal also for the influence of classical art in our schools. If we have pictures, why not have reprints of those that have moved the hearts of men? Why not have the best looking down from our school walls? They are within the reach of any purse. One reprint from the great masters is an uplifting influence for all time. Cheap and gaudy advertisements, glaring and painful chromos, depress the true spirit of art and perpetuate the crudeness we seek to overcome.

The same can be said of music. If we are to sing songs, why not sing the songs of masters? They have sung many for children, beautiful far beyond the rude compositions that fret our ears everywhere. Also with literature. Why not read the simple classics written for the little ones, and the greater classics for the older ones? Why not in all things get the noblest and best that the world has given, and use them to help our children onward and upward?

The silent influence of clean surroundings, of cheerful teachings, of classical pictures and music and literature, the presence of flowers and their care, the planting of shade trees and studies of their growth, will be a supervision so constant and so searching that no child can escape it. Under its potent warmth, like the steady, quiet shining of the sun, the child plant grows into all the marvelous possibility of flower and fruit.

SUMMARY.

1. As to the character of the supervisor who is brought in contact with the rural-school teacher in the discharge of his official duties:

(1) He should be selected with special regard to his peculiar fitness for that office. Whether his office is elective or appointive, his qualifications, in order that he may be eligible, should be such as to enable him to challenge the respect of those whose work he is required to supervise.

(2) In regard to his scholarship, it should breathe that essential spirit of learning necessary to making good, strong schools. The position of supervisor should be made professional with a view of meeting the demand for the best education which the rural school can possibly afford. This requires a scholarship which is above that of the ordinary man. The tendency to put persons in the supervisory position who have no mental attainments worthy of mention is earnestly deprecated.

(3) In regard to moral character, the supervisor should be a living, inspiring example of such a life as alone is worthy the Christian civilization of our times.

He should carry with him a spirit of sincerity in his work, so that people, teachers, and pupils may look to him with hearty respect, and with entire confidence in the integrity of his purposes.

(4) In regard to his professional spirit, he should be in touch with the best educational thought of the times, carrying with him to the country-school teacher and to the people of a rural community the freshness and life which come from reading and studying whatever bears upon the questions he is called upon to aid in solving. He should be a leader, endowed by nature with strong native sense, and at the same time able to impart enthusiasm and energy to all with whom he comes in contact.

2. As to the purposes of rural school supervision:

(1) It should serve to inspire and stimulate the rural-school teacher. If the supervisor is alive to his opportunities, every teacher within the sphere of his influence will be quickened and lifted up to higher efforts for the good of the school. The teachers should learn to look upon him as a friend, and not as a critic; as a wise counselor, and not as a mere fault-finder.

(2) It should be the means of awakening and stimulating the pupils as well as the teacher. They should look for the visits of the supervisor with pleasure, and profit by his talks and advice. By instituting a system of central examinations for the rural schools, he may quicken and encourage the brighter pupils to obtain the best education within their means. The influence of a scholarly supervisor over the pupils is a very desirable thing in the rural school.

(3) The improved condition of the rural schoolhouse is a sure index of the work of a competent supervisor. The present lamentable condition of these buildings is due largely to ignorance and neglect. Competent supervision in skillful hands can work a marvelous change. The cultivation of a spirit of order and neatness, which leads to the ornamentation of the school grounds and to a watchful care over all the environments of the schoolhouse, is one of the purposes of supervision.

(4) Supervision does not accomplish its legitimate purpose when it fails to cultivate a strong, healthy public opinion in favor of everything which tends to make a good school. Hence the supervisor who contents himself with a perfunctory visit to the school only is not a supervisor in the broad sense of that word. A large share of the work of the supervisor is away from the school and among the people.

3. As to the results to be expected from intelligent supervision:

(1) In regard to the school, it unites teachers for a common purpose, and, by teachers' meetings and by the visitations of the supervisor, it breaks up the monotony and isolation of the country school. Under its influence better teachers find their way into the schools, better methods of instruction prevail, and the tone and spirit of the school are greatly improved.

(2) In regard to the community at large, supervision is just beginning to do its legitimate work. In the establishment of school libraries, in the relation of the supervisor to the directors, in an improved school architecture in which due regard is had to sanitary conditions, in the ornamentation and care of the school grounds, in school extension, in the introduction of studies which will add to the attractiveness and profit of life on the farm, in the consolidation of small districts into larger and stronger schools, in awakening a public interest in rural education, there is a field large enough to occupy the time and thought of the most progressive and most intelligent supervisor. It is here we are to look in the near future for the best results of supervision as concerns the rural schools of the country.

LAWTON B. EVANS, *Chairman.*
CHARLES R. SKINNER.
HENRY SABIN.

REPORT OF THE SUBCOMMITTEE ON SUPPLY OF TEACHERS.

The subcommittee on supply of teachers has distributed a large number of circular letters of inquiry, designed to elicit information in regard to the agencies now existing for the preparation of teachers for rural schools, and for the improvement of teachers already in the service, and also in regard to certain conditions, as to the manner of certificating, employing, and paying teachers, which affect the supply. In connection with this inquiry the attempt has been made to gather information as to the defects and excellencies of existing systems, together with suggestions for improvement. To these a sufficient number of replies has been received to justify the belief that they give a fair average statement of the conditions which this report has to meet. Without attempting to summarize the returns, your committee would state the results of the inquiry upon the problem presented and mark out the lines which must be followed, and to what end, in order that the child in the country school may receive the education which is his due. In some State systems progress along these lines is much more advanced than in others, and in some individual cases the desired end has been attained; but this is true, as regards the entire country, in so small a degree that it is unnecessary, even if it were possible, to particularize. With but few exceptions the recommendations made could be justified by reference to various States or communities in our own country, and there are none which do not rest upon successful experiences at home or abroad. It will be found quite impossible to treat the rural school in any of its aspects without touching in some degree upon ground common to all classes of schools, and this is especially true as regards that branch of the problem assigned to this subcommittee.

Certain conditions now very general must be changed in order that the rural school may be supplied with better teachers.

TEACHERS.

There must be in rural communities a clearer appreciation of the qualities essential to a good teacher. It is too often the case that no distinction is made between a teacher of superior scholarship, of proved ability in instruction and discipline, of long experience, and one far inferior in all the qualities essential to success.

The teacher must be engaged for the school year. In many cases the engagement is from term to term, and these frequent changes are, without exception, classed among the most potent causes of failure in the rural school. It is widely true that the school is in session less than half the year; it is often true that in this short school year two teachers are employed, and seldom does a teacher remain a second year. Engagements should be for a longer term than one year, or continuous, and terminated only for cause, as is the case in many cities.

One of the most important points to be considered in a system of schools is that of the authorities employing teachers and assigning them to their work. In cases in which the county or township is the unit of school administration, the problem is solved; in case the district system prevails, the district containing one school, it is evident that the employment and assignment of teachers should be transferred to the authorities of the larger school unit, in order that in the assignment advantage may be taken of peculiar abilities and aptitudes.

The authority which examines should not employ.

Closely allied to this question is one of great interest in the Southern States, namely, that of assignment of teachers to negro schools. For a full treatment of this subject see Appendix J.

SCHOOL YEAR.

The school year must be lengthened to a full school year of nine or ten months. In many States a minimum length is prescribed by statute, but in few cases is this

sufficient. Whatever efforts may be made for the improvement of the rural school, until there can be offered a "year's work and a year's wage" it will be difficult and often impossible to retain accomplished teachers for continuous service; with this, many such teachers would choose this service from family and social connections and from a natural preference for rural life.

In countries in which people are accustomed to the action of centralized authority prescription settles the matter, as in France, where the school year is more than forty weeks; in England, where, as conditions of receiving the Government grant, the principal teacher at least must hold the Government certificate of qualification, the school premises must be in good sanitary condition, the staff, furniture, and apparatus must be sufficient, and the school must have met four hundred times (two hundred days) in the year.

In countries like our own, in which popular initiative in political matters has been the rule, success must usually come by other methods, and in this respect we have much to learn from our neighbors. In Canada the schools have been lengthened to a full school year mainly under the stimulus given by the mode of distributing the Government grants.

Letters and reports have been received from the different provinces. By these it appears that the average length of the school year was in Ontario 212 days; in New Brunswick, 216 days; in Nova Scotia, 198.7 days, the full school year being 216 days and some schools exceeding this limit. A report from Regina, the capital of the Northwest Territories, states that the full school year is considered to be twelve months, less the holidays, amounting to seven weeks, but this limit can not be attained where the sparseness of the population obliges the pupils to travel long distances, on account of the severity of the winters.[1]

Adding to our plan of requiring a minimum school year the Canadian plan, already in a degree recognized in some recent school legislation, of making the amount of Government grant depend, in a large degree, upon the length of the school year and the average attendance, consolidating schools wherever practicable, and giving from the larger units of school administration to aid the smaller and weaker, the obstacle of the short term and insufficient compensation can be removed.

SUPERVISION.

Incompetent supervision forms one obstacle to a supply of better teachers. This obstacle may be removed by securing professional supervision, as is provided by the plan of district supervision so successfully applied in Massachusetts and just enacted in Maine. The subcommittee on supervision treats this subject fully.

It is necessary that more definite tests of professional fitness for the work of supervision be instituted. The extension of pedagogical instruction in colleges and universities in recent years is gradually elevating the work of supervision to a higher pedagogical plane, yet the point has not been reached of demanding professional preparation as an essential condition. For examples of the requirements of more definite tests of fitness see Ontario and France (Appendix N).

It is not unreasonable to hope that in the not distant future the popular standard of education may be so raised that on all educational boards of control, from the State board down to the county or township school board, so much of pedagogical fitness, from the professional point of view, may be demanded as to insure the intelligent consideration of such questions pertaining to the profession as may come before them.

There are various recognized agencies for the improvement of teachers.

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[1] The subcommittee is under obligation to more than it can name, throughout the United States, for information. For aid in its inquiries received from the provincial school authorities of Nova Scotia, New Brunswick, Quebec, Ontario, and Manitoba, and from Mrs. Etta F. Grover, of Regina, Assiniboia, and Mr. Chisholm, principal of the high school in Regina, it would here express its thanks.

ASSOCIATIONS.

The State associations are mainly in the control of teachers representing systems of schools; in but few States are rural school teachers much in evidence at these meetings. The fact that in some States the opposite condition holds shows that the State association may be made a powerful means of uplifting for the rural schools.

In many of the States vigorous county associations are found, although this is by no means universal. In these the rural school receives more recognition, but not often all which is its due. When the county association holds frequent sessions and makes the interests of the rural schools prominent, it proves one of the most efficient agencies.

Some of the States report local associations of rural school teachers which are very efficient. Generally the success of these is largely dependent upon the spirit of the local or county superintendent. With good professional supervision in township and county, the wants of rural schools and their teachers can find due consideration in local and county associations; and by proper organization of rural school sections in the State associations there may be secured such an affiliation of State, county, and local associations as will insure in time a full recognition of the peculiar needs of the rural schools.

It is desirable that the affiliation between these associations be such as to secure in part the working together, along the same lines of thought, during the same years, by the local, county, and State associations, under the inspiration of the State department of education.

SUMMER SCHOOLS OF SEVERAL WEEKS' DURATION.

In some cases summer schools are apparently conducted for the purpose of enabling those attending to pass examinations for certain certificates. The tendency is necessarily toward cramming for the examinations, and so far they cease to be educative in any proper sense of that term.

There is another class of summer schools, often held in connection with colleges and universities, conducted by able teachers, specialists in their departments, for the purpose of advancing education along true lines. Among these, the Agassiz School at Penekese, many years ago, was a revelation and an inspiration to the teachers of the United States. These schools have multiplied in number and enlarged in scope throughout the land, and have proved of great advantage to thousands, not only by increasing their knowledge, but also and much more by bringing them under the personal influence of leaders of thought and masters in teaching.

A third class, with professional courses in psychology, pedagogy, and methods, often combining the character of the second class, preceding, offers great advantages for professional improvement. There should be in every county one of these for the especial benefit of teachers of the common schools; they should be free of tuition, organized and conducted under the supervision of the State department of education, continuing from four to ten weeks. There should be provision for practice teaching, and the instructors should be familiar with rural schools, their condition and needs.

INSTITUTES.

The normal institutes, so called, organized in some States, especially in the West, are essentially the same as the third class of summer schools described above.

County institutes of one week or more, held during the school year, may exert a great influence in the improvement of teachers. When they are conducted under efficient supervision, with a body of instructors capable of increasing the range of thought of teachers, and are organized under such laws as will secure the attend-

ance of the teachers of the county, they prove a powerful means of educational advance.

For the description of such an organization of institutes and results see Appendix P.

Teachers' conventions or institutes of one day, as conferences between teachers, or with superintendents, will prove effective to a greater or less degree according to the purpose, plan, and mode of conducting. In order to secure the best results, they should be held at intervals so frequent that the effect may be continuous.

READING CIRCLES.

The success of the Chautauqua movement, of various organizations for home study, and of teachers' reading circles, in some cases, proves that these may be made generally efficient. There will be no lack of interest on the part of the teachers, if the organization and direction be wise.

The problem is apparently not a difficult one in the larger places, with systems of schools, where numbers of members are readily brought together, but the case is quite different in the case of rural schools. The results reported clearly indicate certain elements essential to success. To secure the advantage of organization there must be a central board of control. This may be a State board with auxiliary boards in counties and towns. Not only are books for reading to be selected, but a plan of work should be carefully drawn up and widely circulated among teachers. The central board should keep in touch with the members of the circles, papers based upon the books read should be written and carefully examined, and the results attained should in some way be passed to the teacher's credit; thus, for a certain number of certificates indicating the completion of a course, a diploma may be granted.

The plan of organization is perhaps best formed by the teachers of the State acting through their associations, and the courses of reading can best be made out by the committees chosen by the teachers for this purpose. The work may be directed by a committee, but, from comparison of results reported, the varying degrees of success, and the many failures, your committee believes it desirable that there should be in the State department of education a bureau of teachers' reading circles, with sufficient force to keep in touch with the local circles, to conduct and encourage correspondence with them, and in every way to promote their interest and efficiency.

Effective study demands the use of books for consultation and reference. Hence the reading circles should be conducted in conjunction with the lending libraries hereafter mentioned.

The reading circles must be considered as a means of improvement, especially for teachers already in the service. No other agency can really take the place of personal instruction in the original preparation of a teacher for his work.

LIBRARIES.

The country town has suffered, and still suffers, from the lack of books. In many States there is now a movement toward the extension of free-library privileges, and wherever there is a town library every school should be made a branch. This system of library extension, becoming universal in cities, can be extended to country as well. By frequent exchange of books, under the immediate direction of the teacher as branch librarian, every teacher and pupil will have the use of a larger library in addition to the special library which should be found in every school. Some books should be added to the library for the special benefit of teachers.

The library belonging to the school is a necessity. Books lent for a time serve their purpose, but a love for good books and the ability to use them aright come most surely from daily companionship. From the library center the school can

be carried into the home. A more valuable work can hardly be done by the rural-school teacher than this, of developing a love for good reading.

In addition to these, there should be established in the county, or the State, or both, a professional library for the use of teachers. This might well be a State library with county branches, and the management of it might well be under the bureau of reading circles which has been mentioned. Such a State school library has been established in New York (Appendix L).

TEACHERS' TRAINING CLASSES.

The agencies thus far treated tend to the improvement of teachers already in the service; none of them furnish a first supply for rural schools, and there is a lack of special agencies designed for that end. The investigations of your sub-committee show that the existing normal schools in general do comparatively little in this direction, except by the teaching of their undergraduates. Although originally established for the benefit of the common school, they have naturally tended to keep step with the development of systems of schools in cities and large villages. The majority of rural teachers, often a vast majority, are now without any professional preparation whatever. The tendency is strikingly shown in returns from the Oswego (N. Y.) Normal School: "Nine-tenths of our pupils come from the country. Not one-tenth ever teach in rural schools." In one of the older States, after many years' existence of normal schools, of more than 12,000 teachers in the public schools of all classes less than 5,000 have ever attended normal schools, less than 4,000 have graduated from normal schools. Over 1,500 vacancies occur annually in the schools of the State. The normal schools of the State graduate about 300 annually, nearly all of whom become teachers in graded schools.

One of the leading States of the Union, with a well-organized school system and a grand equipment of normal schools aiming directly to train teachers for the rural schools, reports that a majority of its teachers have not had professional training. Many other States report a much smaller proportion of trained teachers—one, 8 per cent; another, with one of the best school systems, 30 per cent. As a contrast, an answer to the inquiry of your committee, from Manitoba, states: "Sixty-six per cent of the teachers employed in the Province in 1895 were trained. After this year all will have training." (See Appendix N.)

The cause for such a contrast appears later in this report.

The normal-school system was first devised especially for the benefit of the rural schools, and in obedience to a tendency which had become increasingly strong for some years previous to the time of their establishment. Some brief passages of educational history bearing upon this subject are here cited:

In 1823 Samuel Reed Hall opened a normal school in Concord, Vt., a school for the academic and professional education of common-school teachers, with a school for practice in teaching. Here Mr. Hall's lectures on school keeping were delivered to his class. These were afterwards published. The character of his work led to his being called to the principalship of the English department of Phillips Academy at Andover, Mass. He was afterwards invited to take charge of Holmes's Academy, Plymouth, N. H., and consented on condition that the school should be called a teachers' seminary. He opened this teachers' seminary in 1837 and continued it two years. In this school there was a classical department and no practice school, but the course, as printed in Appendix K, shows the pedagogical character of the institution and the provision made for its students to gain experience in teaching.

In 1829 a training school for teachers of the common schools was opened in the town of Effingham, N. H., by Hon. J. W. Bradbury, ex-United States Senator from Maine, now living, at more than 90 years of age, in Augusta, Me. By

request, Hon. W. W. Stetson, State superintendent of Maine, recently visited him to ascertain the facts in regard to this school, and the interview is annexed to this report as Appendix K.

The sole purpose of Horace Mann in the establishment of the first State normal school in Massachusetts, a purpose zealously carried out by the principal, Cyrus Peirce, was to elevate the common schools of the country. The course of study of the normal school was for one year. In the first year of the school a model school was organized, in which normal-school students had daily practice in teaching. Mr. Peirce himself taught in the model school, as he felt that upon its success the success of the normal school very largely depended. Almost all the pupils at first came from country towns; almost all returned to teach in country schools. There was not then the difference between the rural school and the city school which now exists. In 1847 John D. Philbrick began the experiment of modern grading in Boston, and, with the full development of this system, later, the contrast between the school of the country and the school of the town became more and more marked, and the rural-school problem appeared. The normal-school course, at first simple and adapted to the conditions it was designed to meet, developed to keep pace with the developing school system, and gradually drew away from the rural schools.

The normal school is often removed still further from those who would teach in rural schools by the tendency to raise the standard of admission to the requirements of a high-school course. The fact that most of the towns of the State have a high school is no proof that all those who will teach rural schools can go through a high-school course of three or four years, and then a normal-school course of two or three years. Great care should be taken that the normal school does not get too far from those whom it was especially set to serve. There is needed a more careful determination of the qualities and attainments requisite for entrance upon the work of preparation for teaching. These are sometimes given in larger measures by the experiences and responsibilities of country life than by the graded city high school, and with these every added step in education is great gain. So far as raising the standard of admission is in response to a claim that all academic studies should be taken out of the normal-school course, it may be said that the claim is not universally recognized as valid by those who have had most experience of work at home, and can find but little warrant abroad. In the normal schools of Prussia, Austria, Switzerland, and France, for example, a larger proportion of time is given to academic studies than in many of the normal schools of the United States,[1], but with directions, certainly in France, that in all the course the professional aim shall be constantly kept in view.

It is evident that for the fitting preparation of teachers for the rural school some agency is needed intermediate between the brief convention or institute and the normal school, with its two or four years' course, so far beyond the reach of the majority of rural-school teachers. What shall it be?

Several facts must be kept in mind in the solution of the problem: (1) A large proportion of the teachers of rural schools can not afford the time and expense of a two-years' course in a normal school. (2) The receipts from employment in the rural school under present conditions do not remunerate one for the expense of a normal-school course. This is a simple matter of business, and sentiment will not change the facts. (3) Other conditions remaining the same, attendance at a school is in an inverse ratio to the distance between school and home. This is especially true for a short course.

To meet these conditions there is needed a normal training school with a short course of study. The place is a village which will give over its schools to this

[1] See Report of Committee on Normal Education, Proceedings of National Council of Education, 1892.

normal training school for practice schools. These practice schools, organized as primary schools in one room and as grammar schools in another, will show what can be done with schools in the simplest form of gradation. For a part of the course all the grades should be brought together to illustrate the work of the one-teacher school, such work as should be done in the ungraded school. A faculty of five or six good teachers, including practice-school teachers, would suffice for such a school.

This the general organization—what the work? Treatment of matter essential to good teaching would be grounded on simple fundamental principles. Deficiencies in education would be supplemented by sound teaching; principles of teaching and of school management would be taught and illustrated. Many might learn to do well what they had never done at all; most would learn to do better what they had done poorly. From these schools would come many students for fuller courses of training and a still wider usefulness.

This plan in its development would give a system of district training schools analogous to the county model schools of Ontario and the training schools of Quebec and Manitoba, with a course of study and training of one year, the first half of which should be mainly academic, for those who need this preparation, the second half mainly professional, the work so planned that those of more advanced scholarship need take only the course of the second half year. Of these schools there should be at least one in every county of the State (Appendix N).

The practice in teaching should be thoroughly organized. Every teacher in the school should be, in a certain sense, a training teacher. He should be responsible for the methods of teaching in his own subjects, and should direct lessons given by members of his classes to children from the model training schools. Besides such lessons illustrative of methods of teaching, the pupil teacher should be trained in conducting school work in the schoolrooms under conditions similar to those which she will find in her own school. While teaching in the practice school under the direction of a teacher in charge, she should be left more and more to her own judgment. She should be held responsible for the control and direction of the school, and for the teaching of a class, not merely of a group.

The membership of the class for training should be limited to such numbers as will give the full advantage of the training course, or, with a practice school of the size presupposed, to about twenty-five. A large class necessitates the teaching of groups, not of full classes with the control of a school. The French law limits the number of students in each normal school to three classes of twenty-five each.

The practice schools should be under the exclusive instruction and control of their regular teachers a sufficient proportion of the time to keep them up to the standard of veritable model schools as well.

The completion of this course should give a teacher's certificate of elementary grade, which would also give admission to the State normal school, with due credit on the normal-school course for work already accomplished.

There should be a summer term for rural-school teachers in every normal school in the United States. The plant of the normal school has cost thousands, in some cases hundreds of thousands, of dollars, and for two or three months in the summer this investment remains entirely unproductive. The success of the summer term in the University of Chicago is significant, and the Winona plan, adopted this year in all the State normal schools of Minnesota, sets the example for the nation (Appendix S). In normal schools the work of the first year, or the first part of the course, should be so planned as to have a unity in itself as a preparation for rural-school teachers, and the results accomplished in the summer term should count on this course, so as to encourage subsequent attendance at the normal school. The summer term should not be an institute, nor a summer school, in the usual sense, but should combine the elements of the other terms of

the year. The attendance of children in the training school could be secured easily for two or three hours a day.

There should be organized in all States a system of normal-school extension analogous to the university extension. Wherever a class of sufficient size can be formed, a teacher should be provided. The work should be so organized and conducted as to lead to definite results which can be credited to the members of the class.

There are two possible agencies in the preparation of teachers for rural schools that have not been mentioned:

1. *City training schools.*—In large cities it is not to be expected that the city training school will prepare teachers for rural schools; all their graduates usually find employment at home. But cities in this country with a population of more than 50,000 are comparatively very few, and it is reasonable to suppose that training schools in cities of less than 50,000 will prepare more teachers than can be provided with employment in those cities. The surplus will naturally seek positions in the village and country schools.

Birmingham, Ala., a city of about 50,000, has had a training school for eight years. During that time 25 per cent of the graduates of this school have found employment in the ungraded schools of the county and State. If the training school is encouraged, it can be made an important factor in the preparation of teachers for rural schools. A part of the course in these schools should, therefore, deal with the conditions of the ungraded schools of the county, and the instruction should be specifically adapted to meet those conditions.

2. *Agricultural colleges.*—Many pupils in agricultural schools and colleges teach during their course. In some cases the agricultural college is brought nearer the people by the establishment of branches. Thus in Alabama there has been established in each Congressional district a branch agricultural school, closely related to the agricultural and mechanical college of the State. Can not such schools accomplish much in the specific preparation of teachers for the work of the rural schools?

3. *High schools.*—An effective auxiliary in the training of elementary teachers may be found in high schools. In 1894–95 there were in New York 247 such classes, with 2,482 students. The regulations prescribe the professional qualifications of the teachers who are to instruct these classes, and the equipment and the opportunities for observation and practice to be furnished. The course of study, extending through one year, covers the ground of common-school studies, including with subject-matter the treatment of methods of teaching, the history of education, school management, and school law. The school is to furnish each day the opportunity for the class, or some members of it, to observe methods of teaching in the several grades of common-school work, and, when practicable, the opportunity to teach in such grades under proper criticism and direction.

A system similar to this is in operation in the Province of Quebec.

Although these training classes can not take the place nor do the work of special training schools, yet they offer a ready means for effecting some immediate improvement in the teaching force of the State, and for the selection of those who have such fitness for teaching as will justify their pursuing a special professional course. The teachers of such classes must themselves have received thorough pedagogical instruction, else the result must be a failure; hence the necessity is apparent for pedagogical courses in all colleges.

According to the generalizations of the Superintendent of the last census, over an area of our country of 1,688,827 square miles, containing a population of 2 to 45 to the square mile, the occupation of the people is mainly agriculture; of this territory 1,096,790 square miles are occupied by a people mainly engaged in systematic agriculture, leaving about 260,000 square miles, with a population of 45 and upward to the square mile, in which the leading interests are commerce and manufactures, and in which professional and personal service are in large

demand. The numbers engaged in the principal occupations in the United States, according to the latest United States census, were as follows:

Farm and garden	8,375,979
All the professions	944,323
Domestic and personal service	4,300,506
Trade and transportation	3,325,962
Manufacturing and mechanical industries	5,091,669

In behalf of all these occupations, except the professions and agriculture, the claim has been made and has been allowed that special instruction in their interests be made an important part of the school curriculum—in commercial courses; in cooking; in manual training, on which such vast sums have been expended. Indeed, for many of the professions much of the school instruction is a direct preparation.

Much is said of the necessity for considering the environment of the child; for bringing into his school life the thoughts and interests of his home life, that the school may not prove to him a thing remote and foreign; of making the school a recognition of his past and a preparation for his future. Little sign of this can be found in the ordinary rural school.

The courses of study in the normal school of all grades should recognize more fully than they do the environment and probable future life of the children in the schools, or rather, they should recognize the lines along which lives of most probable future happiness would lie. As has been shown, much the largest class of the workers of this country is engaged in agriculture. The environments of their children are rural. The rural school should aim especially to make country life more attractive and beautiful, and should pay more attention to rural industries. Every normal school should have as a means of instruction a school garden, planned and conducted not merely to teach the pure science of botany, but also the simple principles of the applied science of agriculture and gardening; and every rural school should also have its garden, through which the training of the normal school may reach the home. This element of industrial training should be especially emphasized in the colored normal schools and rural schools of the South.

Other countries lead us. A farm has been set apart for this line of instruction at the Provincial Normal School at Truro, Nova Scotia. The school garden is common in the countries of Europe most advanced in popular education. The school garden and the nursery of fruit trees are a feature of the normal schools of France; there is a course of agriculture in the normal schools for men, of horticulture in the normal schools for women.

The course in agriculture treats of preparation of the soil, special culture of trees and shrubs, of fruit trees, grafting, and the vegetable garden.

The course in horticulture in the normal schools for women treats of the garden in its general arrangements—the fruit garden, the vegetable garden, the flower garden.

Each garden has a space reserved as a botanic garden for instruction in the science of botany.

The instruction received in the normal school is applied in the school garden of the rural school.[1]

[1] The school garden in the New Hampshire State Normal and Training School has proved a source of interest and of instruction to pupils of all grades in the training schools and in the normal schools, such as nothing else can replace. In this garden all the grains and vegetables grown in the region were cultivated, together with a great variety of flowers. Each class in school had assigned to it a plot, for which it was responsible. In the George Putnam School, in Boston, a part of the school yard was turned into a garden, which has received several prizes from the Massachusetts Horticultural Society. On certain days the Jardin des Plantes in Paris is used as a place for botanical study by the school children. I found once on the roof of a London schoolhouse, which was used as the girls' play ground, a large and beautiful collection of plants. And yet the rural school almost utterly ignores its only possible laboratory, the out of doors, the garden laboratory, right at hand. Here lies a duty, not a choice merely, for the normal school.

A French report says that the French farmer is at first opposed to book farming; but when he sees that the products of the teacher's garden are superior to his own, he is glad to learn.

M. Boutan, an inspector-general of public instruction, says in a report: "We can cite several departments in which, thanks to the initiative of the teachers, the wealth of the country has increased from year to year, and from which the exportation of fine fruit has become the source of considerable profit."

There can be no doubt that great improvement in agriculture might result from the general diffusion of such instruction through school gardens, under the direction of qualified teachers. Is there any other means for such improvement in sight of this generation? And a still higher good for the country life might come from thus blending its utilities and its beauties in the thought of the child.

Your subcommittees would also emphasize the importance of two other lines of work already developed in the graded schools, and of a third, which must be made prominent in all schools—language, elements of science or nature study, and morals. Whatever goes into the common school must go into the normal school. Hence, even in the brief course of normal-school training, the instruction in the English language, instruction in the essential elements of its beauty and strength, instruction leading toward such command of its best forms as will tend to make it a transparent medium for the expression of thought, must be held of fundamental importance. There must be such training in elementary science and in manipulation as will give the teacher essential knowledge and skill in this line of teaching, and there must be such instruction in elementary psychology and ethics as is necessary for the comprehension of general principles of method, and of the scope and methods of instruction in morals; and as result of all the preparation which can be given there should be a clear comprehension of the essential aims of education. Would that all our teachers could have constantly in mind and at hand such a statement as is found on the desks of the common-school teachers of France (Appendix R).

EXAMINATION AND CERTIFICATION OF TEACHERS.

Were teaching a profession in the sense in which law and medicine are professions, teachers themselves would formulate the terms of professional recognition; but evidently the time for that is not yet. What the public school is immediately to aim for is uniformity in State examinations, and we have to consider the agencies, the standards, the methods for these examinations. The agency may be the State superintendent of public instruction, a special examining board, or a State board of education when such board exists. Times and places for examination should be announced frequent enough and numerous enough to meet all reasonable demand. The scope and character of the examinations should be announced long enough beforehand to enable candidates to consider the matter deliberately, as is now done in regard to examinations for admission to college and for the civil service. Information as to books for use and as to modes of preparation should be given. Each examination should be conducted by an expert, and the papers should be critically examined.

Certificates granted should be graded as to the range of the examination, not as to length of validity, unless the certificate be a provisional one. A one-year physician would receive little credit; why should a one-year teacher receive more?

Examinations should cover the range of work required of the teacher, and should be written, oral, and practical. The written examination should be planned not merely to test the candidate's range of acquirement, but rather his accuracy, his general style of thought and expression. The oral examination should test the range of attainment, the personality of the candidate, and his readiness in resource. These two are generally combined in one—the written form, but there are great advantages in the separation whenever it is practicable.

The examination for the elementary certificate should cover the ground of common-school studies, with so much of the elements of natural science as is demanded for the intelligent teaching of the nature lessons in the common-school course. The questions should be few, but comprehensive, and such as will fairly test the reflective power of the candidate.

The professional examination for the elementary grade of certificate should not be severe, but should require clear general statements regarding methods of conducting recitations and the organization and management of a school.

The practical examination, or the test of skill, for the elementary grade of certificate, should include some test of the candidate's ability to plan a lesson and an examination paper in some common-school subject, and to conduct a recitation. If the candidate has been a member of a class in training, a record of this practical work might be brought over from the work in that class.

So much ability as is implied by this examination is necessary to the good teaching of any school. Wherever this ability can not be secured now for the rural school, a clear public appreciation of the need will lead to a supply of the means.

The examination for the advanced certificate should in general cover the ground of an English high-school course of at least three years, or fair equivalents for such a course. A special certificate might be given for a foreign language. This examination should include psychology and ethics, drawing, and the elements of vocal music.

The professional examination for the advanced certificate should include history of education, methods of teaching, general principles of pedagogy, and the organization and management of schools.

The practical examination should include the preparation of plans of lessons and of examinations; judging the character of a lesson and a written paper; teaching, including an oral lesson on some subject in nature study, elements of science, language, or morals.

As in the examination for the elementary certificate, if the candidate is a member of any training class, the practical examination can be taken in that class.

Formulating the preceding statements, the teachers' certificates should be graded in two general classes, elementary and advanced, and in each class three grades.

ELEMENTARY:

(1) Elementary scholastic certificate, grade 3.
(2) Elementary professional certificate, grade 2.
(3) Elementary certificate of skill, grade 1.

ADVANCED:

(1) Advanced scholastic certificate, grade 3.
(2) Advanced professional certificate, grade 2.
(3) Advanced certificate of skill, grade 1.

A life certificate of either class and honorable recognition in the profession should be granted after a certain period of successful teaching to those holding the first-grade certificate of that class.

In each class the higher certificate presupposes the lower; thus grade 1 can not be obtained without 3 and 2.

Many, if not most, of the examinations of teachers for rural schools in the United States to-day do not go beyond the range of the elementary certificate, grade 3, as here given; the elementary certificate, grade 2, could be obtained by attendance upon a teachers' training class in a high school. A course in a district training school organized as described in this report, or a partial course of one year in a State normal school, should give the complete elementary certificate. In many cases thoughtful and successful teachers in the rural school, by their own study and the help afforded by a well-conducted reading circle and a

normal extension course, could rise from the elementary certificate, grade 3, to the complete elementary certificate. A high-school course would give advanced certificate, grade 3, and, with the course in a high-school teachers' training class, might give advanced certificate, grade 2. The complete advanced certificate could be obtained by a two-years course in a normal school.

This gradation of examinations and certificates will utilize to the utmost the existing educational agencies, will point out to teachers a way in which they may rise step by step, and will thus encourage their advance, and will secure to the rural school the benefit of their improvement.

A question will arise as to the interval between the elementary and the advanced certificate. (For a wider interval established in Manitoba see Appendix N.) In many cases it may be best to lower the standard of the advanced certificate and make it intermediate between the elementary certificate and the normal-school diploma attesting the completion of a two years' course. On this question your subcommittee pronounces no opinion. It would point out a way by which the teachers of the rural school as it now is may be taken as they are and induced to enter upon a course of advanced study, and by which the school may derive all possible benefit from the advance; and your subcommittee believes that by such a course standards will gradually be raised all along the line.

Your subcommittee on the supply of teachers for rural schools, in closing its report, would call attention to some of the main points in this discussion.

It appears that there are numerous agencies which may be made available for the improvement of rural-school teachers already in the service. With these the only question is that of more perfect organization.

Although there is in general an increase in interest in educational questions and an elevation of standards of teaching, yet the large majority of rural-school teachers now enter upon their work with no professional preparation; the improvement in the character of rural schools, where there has been any improvement, has been slow; large sections of the country report no advance; some report a decline.

The causes for this condition and the changes needed are not far to seek:

1. The school year must be lengthened to a full school year of nine or ten months, in order that skilled teachers may be retained. This result can be secured, as it has been secured elsewhere when its absolute necessity has been recognized. The State, among other conditions for payment from the school fund, may prescribe a full school year, which is done in England, as logically as six, or seven, or eight months, now done in some of our States; or it may secure this result, as it has been secured in Canada, by making the length of the school so prominent a condition in the distribution of the school fund as to insure the cooperation of the county and the town to this end.

2. The existing agencies for the supply of teachers for rural schools do not suffice. There must be modifications in these and the provision of others.

3. There must be some definite standard for the certification of teachers, coming within reach of the teacher of the rural school, and encouraging advance to such higher degrees of attainment and skill as will give full professional recognition. And your committee believes that some provision should be made to secure interstate recognition.

The question of finance does not lie within the province of this subcommittee, but it does not believe that the financial difficulty need prevent the necessary reform. When there is once full recognition by the State of its final responsibility for the education of every child within its borders, there will be possible such an adjustment of expenses between it and the lower educational units as will be burdensome to none and just to all.

Your subcommittee has sought to ascertain accurately what the rural school now is; in all its suggestions it has had in view the rural school as it ought to be.

It believes that this nation can have such a system of schools for all its people as may challenge comparison with any other, and that it will have such a system when it clearly perceives the injustice and the peril of the present condition and the way in which safety lies.

CHARLES C. ROUNDS, *Chairman.*
DAVID L. KIEHLE.
JOHN H. PHILLIPS.

REPORT OF THE SUBCOMMITTEE ON INSTRUCTION AND DISCIPLINE.

Your subcommittee on course of study, methods of instruction, and discipline in rural schools begs leave to report herewith that it has carefully considered the conditions which prevail in thinly settled districts with the intent to discover the evils that exist in the schools as a consequence of those conditions, such, for example, as (1) the want of classification and (2) the impossibility of thorough instruction on the part of the teacher, as well as (3) the lack of that stimulus which comes to the pupil from working at reasonable tasks in company with his equals. Your committee has hereinafter described and discussed various remedies, which it believes will have useful results in practice.

About one-half of all the teachers in the United States teach what are called ungraded schools. They receive in one room pupils of all ages and all degrees of advancement from A B C's upward, sometimes even to algebra and Latin. In extreme cases each pupil is a class by himself in all branches, except perhaps reading, writing, and spelling. It quite often happens that there is no uniformity of text-books, each pupil having a different edition or different author; the teacher is often obliged to borrow the pupil's book when he hears him recite.

According to Mr. Hinsdale's studies of the United States census (see Appendix A), the sparsely settled region of the country includes, first, one-third of the whole domain entirely uninhabited or containing fewer than 2 inhabitants per square mile; secondly, an area of 1,688,827 miles with from 2 to 45 inhabitants per square mile, leaving only 260,000 square miles containing more than 45 to the square mile, and the 443 cities with an aggregate of nearly 19,000,000 people.

It happens that ungraded rural schools with a very small attendance are to be found even in the most thickly peopled States and often in proximity to cities. Rhode Island in 1895 reports 158 out of its 263 schools as ungraded and 64 of them as containing fewer than 10 pupils each; 8 towns have in the aggregate 39 schools averaging fewer than 10 pupils. Vermont in 1893 reported 153 schools with 6 pupils or less each. Massachusetts in 1893–94 reported 16 towns with an aggregate of nearly 100 schools with an average of 11 pupils. New York in 1894–95 reported 2,983 schools with fewer than 10 pupils each and 7,529 with less than 20. Other examples are mentioned in the report of the subcommittee on maintenance.

A school with 10 pupils of ages from 5 to 15 years, of different degrees of advancement, some beginning to learn their letters, others advanced from one to eight or nine years in the course of study, can not be graded or classified to advantage, but must for the most part be taught individually. The beginner who does not yet know a letter should not be placed in a class with another who began last year and can now read lessons in the middle of the primer. It will not do to place in the same class a boy beginning numeration and another one who has already mastered the multiplication table. The beginner in grammar has not yet learned the technique, and is confused and discouraged by the instruction given to another pupil in his class who has already learned the declensions and conjugations.

Any attempt, in short, to instruct two or more pupils in a class when there is a difference of a year's work in their advancement results in humiliating and discouraging the less advanced and in making the maturer pupils conceited. Higher learning in the possession of a fellow-man seems to an illiterate person as some-

thing magical, or bordering on the miraculous; he can make combinations of thought which surprise those who are unused to them. The case is worse with the child in school. To him the elevation given by a year's study seems an endowment of nature and not a result of industry. Permanent injury to the pupils is very often occasioned by wrong classification, for not only does the lower suffer from discouragement, but the higher pupil is necessarily injured by not being held to his best. The teacher is perforce obliged to adapt the lesson to the average of the class. This does not give enough work for the advanced pupil, although it gives too much for those below the average. There is not enough demand upon the first to continue the increase of his powers; he becomes indolent and stops growing.

For these reasons classification as above described ought not to be expected in the rural school; it must remain ungraded, and as a result the teacher must resort to individual instruction wherever there are intervals of a year or more in degrees of advancement between pupils, and this is the actual practice in perhaps the majority of such schools. The older pupils at least should have separate grammar, history, and arithmetic lessons.

It is understood by your subcommittee, as a matter of course, that even in a small school of six to ten pupils there may be two or more pupils of sufficiently near stages of progress to form one class—for example, two beginners in arithmetic, grammar, geography, or history. It may be that a dull pupil has already been studying arithmetic, grammar, or history for a quarter or a half year, and that a bright pupil just commencing the study would be able to keep up with him on a review from the beginning of the book; but it would not do to place a dull pupil commencing a study with a bright one who had already a half year's start in it. It often happens that pupils placed in the same class at the beginning of the year separate widely in power to learn new lessons before the middle of the year. In such cases a class should be broken up to prevent the twofold injury, namely, to the bright pupil by assigning him too short lessons, and to the dull pupil by assigning him more than he can well accomplish.

The teacher, even after forming classes in writing, reading, and spelling, has twelve to fifteen lessons to hear in a forenoon and nearly as many more for the afternoon. There is an average of less than ten minutes for each recitation. The ideal of the recitation or class exercise is that the teacher probe to the bottom the pupil's preparation of his lesson and correct bad habits of study. If the pupil fails to master by sufficient industry the details—the facts and external items—the teacher counsels and reproves, requiring more work on the same lesson. If he finds that the details are mastered, the teacher next tests the combinations, the thoughts that the pupil has used in connecting one fact with another and in seeing relations. Facts are connected so as to form a science when each one is made to throw light on every other fact and all explain each. So a lesson is learned properly when the pupil can place each item in its systematic relation to the whole. He must understand the bearings of all. He must think out the interrelations.

Hence it happens that the good teacher is not satisfied with a memoriter recitation of the details of the lesson—still less with a word-for-word rendition of the text-book. Not the mere words of the book, nor even the disconnected facts or details which the words indicate, but to bring out the thought which unites these details and explains them is the main object of the good recitation. But such a recitation requires time. The teacher can not probe the pupil's knowledge in five minutes and correct his bad habits of study—nor in ten minutes. In the necessarily brief recitation of the ungraded school there is barely time to test the pupil's mastery of the external details of the lesson, the mere facts and technical words. It is for this reason more especially that the rural school has been the parent of poor methods of instruction—of parrot memorizing and of learning words instead of things.

At the beginning of this century only one-thirtieth of the inhabitants of the

United States lived in towns of 8,000 people or upward, and more than 80 per per cent of all the public schools were ungraded schools. The question has often been asked how it is that so many able men who became scholars and statesmen and professional men of eminence could have come from schools as poor as the rural school is said to be. Such eminent men as were produced in those times came from the rural school; there were few graduates from graded schools to compete with them. Of the men now living, past the middle age of life, nearly all received their early education in the rural ungraded school, because even as late as 1850 at least 80 per cent of all the public schools were ungraded, there being only 12½ per cent of the population resident in cities. The rural school threw on the pupil the burden of his education. He was obliged to get his knowledge from books, such books as he could come to possess. Bright pupils do pretty well by themselves if given good books and taught how to read and to understand the technique used in the elementary books of mathematics, grammar, and the other liberal arts. Any country boy who acquires a love for books, who has access to the best ones, and studies them with energy will by middle age become a learned man.

In the ideal classified school the teacher has two classes of pupils, each class containing within it pupils substantially at the same stage of advancement. The pupils of a given class recite together in all the branches, and the teacher has a half hour for a lesson and can go into the dynamics or casual relations of the facts and events treated.

Each pupil in a class learns as much from his fellow-pupils as from the teacher direct; for the teacher draws out of the class its store of observations and reflections on the topic of the lesson. He shows up the one-sidedness of the preparation of the individual pupil; some have neglected this point and some that other point. Each has probably neglected something. But, on the other hand, each of the diligent ones has brought forward something new that is valuable to his fellows. Each pupil finds through the recitation of the others that they have seen some things that had escaped his notice, although he supposed that he understood thoroughly the book presentation of the subject. His teacher suggests many new ideas and criticises the one-sidedness of the views of the pupils and also, it may be, of the text-book. All the statements of the book are brought to the test of verification—either through the child's experience or through other authorities. The child thus learns the method of study.

The ideal classified school can teach and does teach proper methods of study; the rural school can not do this effectively in its five or ten minute recitations. It is because of this that wise directors of education have desired the consolidation of small schools into large schools wherever practicable. Two schools of ten each furnish on an average one-half as many recitations if united as they do when separate, owing to the possibility of pairing or classifying pupils of the same degree of advancement. Ten such schools united into one will give 100 pupils, with a possibility of classes of ten each, which can be more efficiently taught than before, because the pupil can learn more in a class than by himself. The class in the hands of a good teacher is a potent instrument for reaching all sides of the pupil's observation and reflection. Again, it is evident that five teachers can teach the 100 pupils united in one school far better than the ten teachers were able to teach them in the ten separate schools. If still further consolidation were possible and 400 pupils were united in one school, the classification might be improved to such a degree that a teacher could easily take the charge of two classes of twenty pupils, and ten teachers could do far better work for each pupil than was done by the forty teachers in the forty small rural schools before consolidation. Hence, economy becomes a great item in what are called "union schools."

Your subcommittee, in this discussion of the advantages of classifying and the corresponding disadvantages of the want of classifying, has assumed that as good

teachers are supplied to the rural schools as to the schools of villages and cities—teachers of experience and skill, teachers of thorough academic and professional training in normal schools. It is assumed that States have made provision for good salaries in these ungraded schools and that the license to teach requires professional training.

It is admitted as a fact, however, that the average rural-school teacher receives a small salary—not more than one-half that of the teacher in the city or large village. It is true, as reported by the subcommittee on maintenance of schools, that some States, notably California, New Jersey, Massachusetts, Rhode Island, and others to a greater or less degree, are providing, by a wise distribution of school money, to secure skillful teachers for these small, ungraded schools. But the evils above described as appertaining to instruction in ungraded schools are of such a character as not to yield to ordinary remedies.

Your subcommittee would call special attention at this point to the evil results that come from the attempt to remedy the defects of the rural school by forcing on it the system of classification found in cities. It is assumed that some of the benefits of the close grading possible in cities will be gained for the rural schools if they can roughly group the whole school into three or four classes. A rural school of thirty pupils, comprising children from 6 to 16 years of age and covering different degrees of progress, from beginners up to those of eight or nine years of schooling, are grouped, let us suppose, into four classes or grades, thus leaving intervals of two or more years of school work between a given group and the next one above it.

Your subcommittee has already pointed out the evils of classifying pupils in such a way as to bring together pupils differing in degree of advancement by intervals of two years. In fact, it has been found in city schools that one year's interval between classes is too much. The greatest danger of the graded-school system in cities comes from holding back bright pupils for the sake of the slower and duller pupils. Next to this is the evil to the dull ones, who are dragged forward at an unnatural rate of progress to keep up to the average rate of the class. The best pupils are engaged in "marking time," while the slowest are constantly spurred forward by teachers and parents to keep with their class, and their school years rendered miserable. Their self-respect is undermined by a false standard, that of mere speed in learning. The "marking time" injures the bright pupil by developing lax habits of study, while the forced marches of the slow pupil tend to destroy his poise of character. It has been found desirable, therefore, in city schools, to make the intervals between classes as small as possible, so as to favor frequent transfers, namely, on the one hand, of bright pupils who are becoming capable of a greater amount of work into a higher class, and, if necessary, of those who are falling behind the average of the class into the next one below. Intervals of a half year are, therefore, adopted in a majority of the progressive city school systems, and many prefer intervals of a quarter of a year where it is practicable to make them, that is, where a large number of pupils makes possible the assignment of a requisite quota for each class. At the request of the subcommittee, Dr. E. E. White, an eminent authority on all that relates to school management, has furnished a statement of his views of classification in the rural school, illustrating them by a programme, which allows twenty-five minutes for each recitation. But the intervals between the classes amount to two years' work, and inasmuch as he expressly provides for capable pupils, letting them "work ahead of their classes," he leaves the question where it is left by the subcommittee, unless the pupils are supposed to do their "advance work" without the teacher's supervision. (Appendix I.)

Your subcommittee would respectfully call attention to the danger of attempting to classify the rural school in imitation of the city school as peculiarly liable to happen in those schools where professionally educated teachers are employed.

The State and city normal schools have very properly laid stress on grading and classification, and on the methods of instruction by classes, and have ignored individual instruction. Their graduates have mostly sought and obtained places in the graded schools of cities and villages. In fact, the graded schools have outbid the rural schools for teachers having professional training. But, with the new movement to secure better teachers for rural schools by larger appropriations from the State, it has happened that many experiments of classification are attempted which result disastrously in the manner described, namely, by demoralizing or destroying the courage and ambition of the exceptionally bright and the exceptionally dull pupils. The charge has been made that such rural schools as adopt a partial grading system are apt to become stifiers of talent by placing a premium on the average scholars and holding back the promising youth of the district.

It is obvious from this that where State normal schools furnish teachers for the rural districts there should be conducted a special inquiry into the influence of the size of the school in determining the uses and the dangers of grading and classifying pupils.

There is no doubt, moreover, that the abuse of classification is the crying evil of the schools of villages and small cities. For the average pupil these village graded schools are uniformly good, but they often work injury to the exceptional pupils and are in this respect sometimes inferior to the ungraded schools in sparsely-settled districts.

Your subcommittee would here explain that the technical terms "grading" and "classification" are often used, as above, to signify the same thing, namely, the dividing of the pupils of a school into groups or classes, each containing children of the same, or substantially the same, degree of advancement. But another meaning is often given to one of these terms. The work of the year, more or less, is also called the work of a grade, and the work of the elementary school, consisting of the first eight years' work, is divided into eight grades. It will be readily understood in this second use of the word "grade" as covering a year's work that a school may be graded, that is to say, its work may be arranged upon a programme of eight grades, each one of which requires a certain modicum of reading, writing, arithmetic, geography, grammar, etc., for a year's work, and yet have only ten or twenty pupils, and perhaps these representing only three or four of the eight grades.

By a graded school, as applied to such a state of things, is meant simply a school whose programme requires a regular sequence of studies and a full quota of studies for each pupil. If a pupil is at a certain degree of advancement in his arithmetic, the programme of the graded system would place him also in a class correspondingly advanced in geography, history, reading, or other studies. But the small rural school has been called "ungraded" because it contains or may contain pupils of all grades, from the lowest to the highest, and consequently obliges the teacher to scatter his teaching force over a wide range of topics. The large school permits specializing by dividing the school in such a way that the pupils of one grade, or perhaps two grades, are taught by one teacher, the next one or two grades by another teacher, etc., permitting each teacher to specialize his work by giving him fewer topics to teach, and consequently insuring longer recitation periods and constant improvement in skill.

It is to be supposed that all schools will be graded in the sense that they will have a course of study, and that pupils will take up their branches of study in due order, and that these studies will be associated, so that a given degree of advancement in one study implies a given degree of advancement in another. What is properly called the correlation of studies presupposes that a certain degree of advancement in arithmetic corresponds to a certain degree of advancement in geography, reading, grammar, and other studies, all of these being determined within limits by the pupil's age. The word "grading," as a synonym for

classification, is freely used by your subcommittee in this report, but it has discussed the topic indicated in the other and less frequent use of the word "grading" in that part of its report which follows, relating to the course of study.

THE COURSE OF STUDY.

Your subcommittee has assumed that the course of study in the rural schools should be substantially the same as that of the city schools. The differences should concern only minor details. It would, therefore, refer here to the report of the committee of fifteen for fuller details, and for the discussion of the grounds for selecting the several branches of the course of study. The course of study of the elementary school, whether urban or rural, should contain those branches which give the child an insight into the physical world and the means of conquering it for human uses, and also an insight into human nature and the motives that control the actions of men. The child should above all be taught how to combine with his fellows to secure reasonable ends. The windows of the soul are to be opened by the five branches of the course of study, thus enabling the youth to see (1) the conditions of inorganic nature by arithmetic and the elements of physics and chemistry; (2) the conditions of organic nature by studying plants and animals, the land, water, and air, and, besides these, the means that man invents and uses to connect each place with the rest of the world—these things belonging to geography. These two "windows" look out upon nature. The three others enable us to see man; (3) literature and art as revealing human nature, arousing pure and high aspirations in the youth, and freeing him from narrow and mean views of life; (4) the study of the structure of language, as found in the several subdivisions of grammar and rhetoric; (5) history, which treats of the greater self—of man as a social whole.

These five branches belong to all schools, for they relate to the substance of humanity and are necessary for entrance upon civilization. Besides arithmetic, geography, literature, grammar, and history, there are collateral branches that each school should include—some of them information studies, such as oral courses in the sciences, in history, and in the arts—others of the nature of disciplines, or arts of skill, such as vocal music, gymnastics, manual training, the art of cooking, and some special attention to the elementary principles of the useful arts practiced in the neighborhood of the school, namely, farming, horticulture, grazing, mining, manufacturing, or the like (Appendices G and H).

In general these collateral branches should relate to the pupil's environment and help him understand the natural features of that environment, as well as the occupations of his fellow-men in the neighborhood. There are two things to understand in this matter of the geography of the environment. First, what it is and how it came to be—its land and water, its mountains and river valleys, its climate and soil, its productions, mineral, vegetable, and animal, and their peculiarities, how they differ from the productions of the rest of the world. Second, the means by which man procures from nature what is useful for himself and others, manufactures it and uses it, or exchanges it with his fellow-men so as to share in the productions of all climes and places, no matter how far distant. If a comparison must be made, this second topic of elementary geography is more important than the study of the natural features of the environment, because it is more immediately useful to the pupil and to the community in which he lives.

Let the pupil beginning the subject of geography commence with what is nearest to his personal and social interests, namely, with the products of the industries of his section. Let his studies go out from these products in two directions; first, to the natural conditions which make these products possible and which furnish in general the raw material; secondly, in the direction of the purpose of this, the uses made of it, the things produced, the needs and wants of his fellow-men near and

far; and the productions of the other parts of the world which are needed in his section to complete the supply of articles for food, clothing, shelter, protection, and culture. These items, including natural production and the human occupations of manufacture and exchange, may be said to be the chief theme of geography as it should be taught in the elementary schools. But the home environment is also to be kept in mind by the teacher throughout the entire course. Arithmetic should gain concreteness of application by its use in dealing with home problems. Literature should be pointed and applied, so far as may be without becoming provincial, to the pupil's environment; and so the other branches—history, and even grammar—should be brought home to the pupil's knowledge or experience in the same way. The pupil should have prepared for his study a list of the chief provincialisms of speech to which his section is addicted, and to the peculiarities of pronunciation in which his neighborhood departs from the national or international standard of usage.

The committee of fifteen has already advanced the opinion that the industrial and commercial idea is the central idea in the study of geography in the elementary schools. It leads directly to the natural elements of difference in climate, soil, productions, races of men, religion, political status, and occupation of the inhabitants, and it explains how these differences have arisen in some measure through cosmic and geological influences. It should be the teacher's object to make the pupil understand, just as early as his growing capacity admits, the peculiarities of his habitat, leading him to study the land and water formations in his neighborhood, and giving him power to recognize in the visible landscape about him the invisible forces that worked in the past, and still are at work in the present, molding these shapes and forms. On the basis of this knowledge of the elements of difference produced by nature in soil, climate, and configuration of the landscape, he should explain the grounds and reasons for the counter process of civilization which struggles to overcome these differences by bridging the rivers and tunneling the mountains—by using steamboat and railroad so as to unite each particular habitat with the rest of the world. He should see how man adapts to his needs the climate of each place by creating for himself a comfortable temperature, using for this purpose clothing and shelter, as well as fuels of wood and coal or derived from oils and gases, to protect from cold, and on the other hand utilizing ice or power fans, and creating easy access to summer dwellings on the heights of mountains or at the seashore, to mitigate the heat. He turns the soil into a laboratory, correcting its lacks and deficiencies by adding what is necessary to produce the crop which he desires. He naturalizes the useful plants and animals of all climes in his own habitat. It is evident that the details of the process by which differences of soil, climate, and production arise, important as these are, should not be allowed to occupy so much of the pupil's time that he neglects to study the counter process of industry and commerce by which man unites all parts of the earth to his habitat, and progressively overcomes the obstacles to civilization by making climate and soil to suit himself wherever he wishes.

To restate this important point in a word, it is true that the deeper inquiry into the process of continent formation, the physical struggle between the process of the upheaving or upbuilding of continents, and that of their obliteration by air and water; the explanation of the mountains, valleys and plains, islands, volcanic action, the winds, the rain distribution, is indispensable to a comprehension of the physical environment. But the study of the cities, their location, the purposes they serve as collecting, manufacturing, and distributing centers, leads most directly to the immediate purpose of geography in the elementary school, for it is the study of that civilization in which the pupil lives and moves and has his being.

Keeping this human standpoint in view all the time as a permanent interest, the inquiry into causes and conditions should proceed concentrically from the pupil's use of food and clothing to the sources of the raw materials, the methods

of their production, and the climatic, geologic, and other reasons that explain their location and their growth. It is important in this as in all matters of school instruction to avoid one-sidedness. Although the human factor should receive the most emphasis, special care should be exercised lest the nature factor should be neglected.

Your subcommittee would refer to the discussion of this subject under the head of "Geography" in the report of the committee of fifteen for further illustration.

There is not much use in requiring instruction in branches not yet reduced to pedagogic form. It is necessary that matters taught should be so systematized for school use as to admit of arrangement in a progressive series of lessons, the first of which alone would be useful if no second lesson followed, and the subsequent lessons each useful if the pupil studied none of the following.

Each lesson when arranged in a pedagogic form leads up to the following lesson and makes it easy to grasp, just as each stair makes the next one easy to climb. For example, the first lesson in cookery is an exercise in accurate measurement by spoonfuls and cupfuls, etc., and calculated not only to aid in the next lesson and make it possible, but also to be of use through life in the kitchen. Concerted efforts are being made in agricultural colleges to reduce to pedagogic form the arts of the farm, the garden, and the forest.

THE PROGRAMME OF STUDIES.

Your subcommittee deems it important to call attention again in this place to the prevalence of a misconception in regard to the relation of the course of study to the system of grading and classification. Every school, whether ungraded or graded, should have a course of study minutely arranged, so as to show the average or reasonable rate of progress of the pupil of a given age and advancement in the work of the school; but, as has already been shown, it is not required that the school shall contain classes in each and all of these grades, nor, indeed, classes at any given stage of progress in the course of study as laid down for any particular quarter or term of the year. Above all, it must be understood that in laying down the quarters or other divisions of a grade or year's work it is not to be expected or desired that the pupils entering school at the beginning of the school year in the fall should commence at the beginning of any grade's work. If a class consisting of two or more individuals (or of one individual only) left off the previous year in the third quarter's work of the fourth grade, it should begin its work after vacation at the point where it left off, unless there are special reasons which require a review of some portions of the work.

The course of study is the measuring rod or scale which is used to determine at what point in the eight years' work of the elementary course a pupil has arrived. It should not be used as the Procrustean bed on which to stretch the work of the school in order to give it uniformity. It has happened not infrequently in the past that upon the first adoption of the graded system the superintendent of city schools held annual examinations on the completion of the work of the grade, and for this purpose insisted upon the unreasonable requirement that all of the pupils in the school should have begun the work of a grade on the first day of the year and should be expected to finish the grade work in the fourth quarter of the year. This was said to be for convenience of promotion—all pupils leaving the work of one grade and passing to the next were said to be promoted. This fiction has effected serious injuries in city schools. The apparent reason for such a system was the convenience of the superintendent who desired to make only one set of questions for each grade, and hold his examinations all at one time. If he had adopted a plan of preparing an examination for any class of pupils at the time when they should have completed the work of the grade (whether in the first, second, third, or fourth quarter), such a system need not have existed. The false

idea of promotion has also been the source of great evils. When a pupil has finished the work laid down in the course of study for any grade, he should begin the work of the succeeding grade at once, and it is not necessary to have any special examination. The class teacher is supposed to examine her pupils from day to day, for each recitation is an examination revealing the pupil's understanding not only of the day's work but of his previous lessons; and the principal of the school is supposed to be well acquainted with the progress of his pupils. It is not necessary, therefore, to hold a general examination on the work of the grade if the class teacher and the supervising principal have performed their duty.

It is understood, too, that there should be much written work in the school, but that it should not as a rule take the form of competitive examinations. There is no other exercise in the school more valuable than that of written expression, but this should be limited chiefly to the review work of the pupil. The teacher, for illustration, should prepare questions at the close of the week on the previous five or six days' work, such questions as bring out the most essential points and the principles which connect the details that have been studied. The pupil should be permitted to sit down by himself with plenty of time before him to write out his answers to these probing questions. By this means he learns gradually to collect his thoughts, and will do more thinking in connection with his written examination than in any other test or study in his school course. The written examination should not be postponed till the end of the year or to the end of the quarter, but should be a matter of at least weekly occurrence. It should be written work of a review character rather than examination of a competitive character.

While the course of study for the elementary school will cover eight years and be subdivided so as to show quarterly, semiannual, or other stated progress, as already said, it will not be expected that the rural school with its 10 or 20 pupils will have each and every grade represented; perhaps, for instance, there will be three pupils in the first grade, two in the second grade, one in the third grade, none in the fourth grade, two in the fifth grade, none in the sixth and seventh, and two in the eighth grade.

Your subcommittee assumes likewise that the discipline of the rural school should be strict though mild, like that of the city school. The fundamental school virtues of regularity, punctuality, and industry are auxiliary to moral virtues and form together a training of the will which is of great importance in producing the future good citizen. It must not be thought that, because a school is small, therefore the discipline is of less importance. The formation of habits of order and of respect for the rights of the social whole is necessary for the good citizen, whether of country or town.

REMEDIES FOR THE EVILS OF THE RURAL SCHOOL.

Your subcommittee would here point out that some of the evils of the rural school are due to its nonsocial character, its inability to furnish to each of its pupils that educative influence that comes from association with numbers of the same age and the same degree of advancement. The rural school furnishes only a few companions to the youth, and those either above him or below him in grade of progress in studies. The remedy for the evils of the ungraded school are suggested by this very feature or characteristic. Radical remedies in this case must all contain some device to bring together pupils of different districts and bring into wholesome competition with one another the pupils of the same grade of advancement.

Transportation to central schools.—The collection of pupils into larger units than the district school furnishes may be accomplished under favorable circumstances by transporting at State or local expense all the pupils of the small rural districts

to a central graded school and abolishing the small ungraded school. This is the radical and effective measure which is to do great good in many sections of each State. As shown already by the subcommittee on the maintenance of schools, Massachusetts, in which the plan began under the town superintendent of Concord, Mr. John B. Tileston (about the year 1878 in Concord, or even earlier in the town of Quincy, see Appendix F), paid in 1894-95 the sum of $76,608 for the transportation of children from small rural schools to central graded schools—213 towns out of a total of 353 towns and cities using this plan to a greater or less extent, and securing the twofold result of economy in money and the substitution of graded for ungraded schools. The spread of this plan to Maine, Vermont, New Hampshire, Connecticut, Rhode Island, New Jersey, Ohio, and some other States (see Report of Bureau of Education for 1894-95, pp. 1469-1482) demonstrates its practicability. Experiments with this plan have already suggested improvements, as in the Kingsville experiment in Ohio, where the transportation reached in all cases the homes of the pupils, and yet reduced the cost of tuition from $22.75 to $12.25 a year for each of the 50 pupils brought to the central school from the outlying districts.

Improvement of roads.—Wherever this plan of abolishing the small ungraded school is practicable it is by far the best remedy to be applied.

But there will remain large numbers of small ungraded rural schools in which the plan of transportation is not feasible by reason of great distances and poor roads. The Agricultural Department is seconding the efforts of many States to improve roads in rural districts. In many places road improvement is a necessary condition previous to the betterment of rural schools.

Special appropriations for small rural schools.—The device of securing skilled and professionally trained teachers by providing, as in California, a sufficient salary for each district, no matter how few its pupils (see Appendix C), has already been described by another subcommittee (that on maintenance). It is undoubtedly a wise measure, provided it does not hinder the consolidation of districts through the adoption of the Massachusetts plan. If it works to preserve the small ungraded school in places where consolidation is feasible, it will in the end be an injury to the cause of rural schools. Your subcommittee therefore ventures to call attention to the importance of adopting such laws as are operative in California, New Jersey, Massachusetts, and New York for the better remuneration of rural-school teachers, but with a proviso that makes it a pecuniary advantage to a town to abolish its outlying ungraded schools and furnish transportation to a central school.

Concentration of the higher grades of pupils.—Where transportation of the whole school is not feasible, it sometimes happens that the teaching may be very much improved by the transfer of two or three of the pupils of the higher grades who consume very much of the teacher's time. By transportation of these two or three pupils to the central school the teacher thus relieved may find time for much better instruction of the pupils in the lower grades who remain under his charge.

School exercises at the town or county centers.—For the small ungraded schools that can not be abolished, perhaps one-third of all the schools in the United States at the present time, your subcommittee suggests the provision of occasional meetings at town centers or county centers, perhaps twice a year or oftener, under the direction of township, union township, or county superintendents, as the case may be. The meeting should have as its primary purpose the bringing together of advanced pupils—say sixth to ninth years' work for examination and comparison, the examinations to be chiefly written. Certificates should be given to those who complete the elementary course of eight years as a whole or in any one of its branches, permitting a pupil who passes in one branch this year, say in grammer or history, to pass in another branch at a subsequent examination whenever he

presents himself. These examinations have been in operation in several counties of New Jersey for nearly twenty years.

This plan has an interesting and profitable illustration of many of its features in the operation of the Boxwell law in Ohio. (State School Commissioner Corson, Report 1895–96.) It was also carried out years ago in many particulars by Superintendent Wade in West Virginia.

The proper use of competitive examinations.—It is understood by your subcommittee that the prejudice against competitive examinations is well grounded. It often happens that schools are subjected to mere mechanical drill in order to secure a higher per cent in this sort of examination. High per cents can not be obtained by entire classes upon work which requires not only a knowledge of details, but a knowledge of the causal relations underlying them. Your subcommittee desires to say that it does not recommend indiscriminate competitive examinations, but that it recommends written work and examinations which test the thinking ability of the pupil and lead him to considerate inquiries and accurate statements. High per cents on anything except mechanical work, such as spelling, the multiplication table, the tables of weights and measures, and paradigms, are not desirable.

The plan of township and county union exercises of rural schools above described obviously includes the good feature of social interconnection, each pupil of the remote districts working consciously in combination with many others toward a common end, and all the pupils stimulated, both in school and out of it, by this social motive.

Promotion of home reading.—The excellence of the Chautauquan plan for the promotion of home study lies in the same feature. Each reader is stimulated and encouraged by the consciousness that he is working on a task common to the endeavors of a vast multitude. The task is dignified and ennobled by such social participation. The youth in the rural district is by this plan to be made a home student, and his education is thus to be extended beyond the school. He may have obtained his first recognition in the township examination while he was a member of a rural school. He is an object of semiannual inquiry on the part of the township or county superintendent for years afterwards. Each new teacher that comes to the rural school is charged by the superintendent with the duty of looking up the young men and young women who made a record in the central examinations, and inquiry is made after their continued reading and study. This in itself will be a powerful influence to cause young people to continue self-culture by studying a prescribed series of books in years subsequent to the school period. It will add dignity and self-respect to the rural-school teacher who is charged with the work of making friendly inquiry into this school extension and of offering help in case of application from any of the parties interested.

Reviewing studies.—The rural school with its five-minute or ten-minute recitations can not do much in the way of reviewing previous lessons. The good teacher in a graded school carries on from day to day a review of previous lessons. He gathers up and connects with the lesson of the day all the essential threads that bind it to what has gone before. It is this work of reviewing that will be assisted by the occasional examinations at the township center.

Moreover, the old evil of the rural school, that of having all pupils begin at the beginning of the book at the commencement of each annual term, will be removed, for the superintendent will have a record of the standing of the advanced pupils and will require a report from the new teacher as to their programme of study.

This plan also points to the utility of more written work in the rural school. A set of questions prepared beforehand and given to a pupil at the close of the week, as above recommended, will test not only his knowledge of the superficial details of his week's work, but also of his understanding of their deeper connections and principles, as no oral recitation could be made to do.

School extension.—In this connection another branch of what is called "school extension" or "university extension" is practicable. Home reading can be managed from the same center, namely, the rural school. Everything that adds social importance to the rural teacher may be of service. It is evident that those pupils who have graduated from the public school and have entered upon the business of life may profitably carry on useful courses of reading in the various departments of literature and art, science, and history. The township or union township superintendent, in conjunction with the county superintendent or State superintendent, should set into operation as far as possible courses of home reading, employing the aid of the rural-school teachers to carry this into effect. A record containing the names of the persons who have undertaken home reading, the names of the books completed, and the dates of such completion will form an interesting record. This home reading, moreover, should have its social gatherings in which there are discussions of the contents of particular books that are read. For this purpose the township superintendent or the county superintendent may select specially well-fitted persons who shall present analyses of the books and discussions of their contents. It is desirable that the course of home reading shall not be one-sided, but shall move in each of the three directions: literature, including poetry and prose; science, looking toward the organic and inorganic kingdoms of nature, the plant, the animal, and the details of matter and force; and toward archæology, ethnology, and sociology, and politics, history, biography, and art. One must not be altogether dissatisfied if it is found that the novel is the chief book in demand, especially in the first five years of the home-reading circle. In our day the novel discusses every question of history, politics, sociology, and natural science. The old-fashioned novel which describes manners has its great use, too, in the fact that it gives to the people of whom we are speaking, the people of the rural districts, a ready knowledge of manners and customs of polite society. In this respect it is sometimes more useful than books of science and history.

Lancasterian or monitorial plan.—The topic of written work suggests a further topic of great importance in the rural schools, namely, that of the occasional employment of older pupils in the work of supervising the exercises of less advanced pupils—a committee of two or three pupils to examine and mark the papers written by those studying geography; a monitor assigned for some hour in the day to inquire into the work of a backward or dull pupil who has reached a difficult place in arithmetic; a similar assignment of a pupil to help another in a grammar lesson or a history lesson; these are cases where the monitorial or Lancasterian system may have greater or less utility. It cultivates directive power and self-respect in a pupil to be called to the aid of the teacher. But the dangers of it are well known. No weak disciplinarian should try the monitorial system. On the other hand, every strong disciplinarian in the ungraded school can use some features of it to advantage.

The bane of the Lancasterian system was its use to furnish cheap assistant teachers in graded schools. It resulted in bringing into the schools a class of so-called "pupil teachers," educational novices in the place of experienced and professionally trained teachers who ought to be everywhere employed in graded schools. Limited entirely to ungraded schools and to teachers with disciplinary power, the older pupils may profitably be employed to help in the work of the school. But they should not take up any work continuously. It should all be occasional, inasmuch as every thread of the school work must come under the eye of the schoolmaster frequently—daily, or nearly as often. If he has asked an older pupil to explain a point in arithmetic to a dull pupil, the latter will show the degree of efficiency of that help in the first recitation after it.

Another rule for the guidance of the teacher is: Never to employ a monitor

unless such assignment of work is useful both to the pupils taught and to the pupil teacher.

A teacher may gain time needed for assistance of the advanced pupils in some important study by requiring in advance the assistance of these pupils in some of the following forms:

(1) Marking examination papers.

(2) Helping pupils over some difficulty in arithmetic, grammar, or other branch having strict logical sequence in its topics.

(3) In explaining the thought of a reading lesson to a backward pupil.

The effort of one pupil to explain to another a difficult passage of literature is one of the most profitable of all school exercises. There will undoubtedly be crudities in the explanation, but this will all come out under the teacher's subsequent tests, and the exercises will increase in profit through the final explanation given by the teacher.

(4) In assisting to test mere memory work on the part of a pupil, as in the case of the spelling of difficult words, the learning of paradigms in grammar, the learning of the required tables of weights and measures, the multiplication table, etc., or in any other necessary data that have to be fixed in the memory. In general, what is nearest to mechanical work may be supervised at times by monitors, and monitors may be useful in assisting in the preparation of thought lessons that are to come later before the schoolmaster, as, in the example given, the getting out of the thought of a reading lesson, or even of a history lesson.

In conclusion your subcommittee would lay chief stress on the function of school extension, above sketched in outline, as the most profitable line of work for the improvement of the rural school—both pupils and teachers.

WILLIAM T. HARRIS, *Chairman.*
ADDISON B. POLAND.
LLOYD E. WOLFE.

Mr. Poland, while concurring in most particulars, desires to add the following statement:

While I concur most heartily in nearly all of the recommendations made by the subcommittee on course of study, etc., I feel compelled to state that, in my opinion, the report somewhat exaggerates the difficulties and dangers of attempting to classify pupils in rural schools. It fails to discriminate between rural schools of ten pupils each and schools of a larger number, say thirty to sixty pupils each.

The general argument is based upon conditions that exist in a "school with ten pupils of ages from 5 to 15 years;" and the conclusion drawn is that "for these reasons classification as above described ought not to be expected in the (any) rural schools."

The conclusion, it seems to me, is altogether too general. My own observation of rural schools in the States of Massachusetts, New York, and New Jersey has led me to believe that their efficiency as a rule is in direct ratio to their wise and careful gradation; that, in fact, the best graded schools are the most efficient. I am speaking, of course, of rural schools containing twenty-five pupils and upward where partial grading at least is generally believed to be practicable. Grant all the cases of individual hardship that the report truly affirms of misgraded pupils, yet the total loss of efficiency is immeasurably less than where no grading is attempted. Economy of teacher's time, longer recitation period, class emulation, etc., more than offset the disadvantage, often only theoretic, of a pupil's working in advance of his point of "maximum efficiency."

I am not, therefore, in full harmony with the report, in so far as it may have the effect to discourage teachers from attempting to classify pupils whenever and wherever practicable.

A. B. POLAND.

Mr. Wolfe, while agreeing in many points with Mr. Harris, desires to make the following statement:

Perhaps my opinion may be characterized as explanatory or supplementary rather than dissenting. Believing with Dr. Harris that the chief aim of the report of the committee of twelve is to provoke thought, I make this contribution to that end. Complete unanimity no more exists among the members of this committee than among the great army of teachers for whom the report is prepared; nor is such unanimity desirable. The subject will be treated under the following heads:

1. The present condition and trend of rural-school grading and classification in the States of the Union. 2. Dr. Harris's plea for individual instruction rather than the instruction (in the same class) of pupils who are more than one year apart in their advancement. 3. The underlying pedagogic principles that seem to justify Dr. Harris in opposing the doctrine of his report to a body of opinion on classification and grading which is gathering volume and momentum with each decade. 4. Objections to the doctrine of the report.

1. Recent decades have witnessed a strong movement in many of the States of the Union to model the rural-school course of study, grading, and classification after the ideal of the city graded school. Several States prepare, publish, and distribute State courses of study for rural schools, and send out, at stated times, uniform examination questions prepared with reference to the course of study and the system of grading and classification set forth therein. In other States the county school authorities issue the rural-school course of study. In still other States the school journals and associations hold up the grading and classification of rural schools as an ideal to be obtained in the near future.

2. The burden of Dr. Harris's report is: "Be ye not unequally yoked together." Just here a word of explanation of the expression "the ideal of the city graded school." This ideal is a course of study divided into at least eight yearly divisions or grades of work, the pupils of the school being divided into eight corresponding divisions or grades. A school is graded when the pupils of a certain year or grade are pursuing the work of a corresponding year or grade in all the branches. It is, therefore, evident that the word "grade" has two meanings—a grade of work and a grade of pupils. All pupils who are graded are classified, unless there be but one pupil to the grade. But all pupils who are classified are not necessarily graded. A pupil without classmates is graded when he pursues all the work of the corresponding grade, and yet he can not be said to be classified. Pupils may be grouped in classes, and thus be classified, and yet not be graded, because they may be pursuing work of different grades. Dr. Harris is not opposed to a course of study for rural schools, nor to dividing that course of study into eight divisions or grades of work, nor yet to grouping pupils into classes or grades, provided classmates are not more than a year apart in their advancement. But most rural-school courses of study necessitate the grouping of the pupils of the fifth and sixth years of advancement into one grade; also, the grouping of the pupils of the seventh and eighth years into another grade. It thus happens that not only are pupils two years apart in their advancement yoked together in the same class and grade, but that, on alternate years, they are obliged to study the sixth year's work before the fifth, and the eighth before the seventh. It will thus readily be seen that the main thought of Dr. Harris's report is a standing protest against the grading and classification of pupils in the rural school as now practiced in many of the States.

3. We are now to inquire what pedagogic principles can be invoked to justify Dr. Harris in throwing the whole weight of his influence against the evolution of the ungraded country school into the graded school. And first, we must bear in mind that the subject of the report of Dr. Harris is "Instruction and discipline in the rural schools." First, efficient instruction must be adapted to the capacity

of the learner; otherwise it can not be grasped and assimilated. Second, other things being equal, instruction is more efficient when given to pupils associated in classes than when given to individual pupils. Not only does a pupil gain much information from his classmates during a recitation, but the recitation gives him an insight into the individual capacities and peculiarities of those among whom he is to succeed or fail in professional or business life. Third, efficient instruction requires a reasonable length of time for a class exercise. In a city graded school, with at least one teacher for each grade of work, the three principles—adaptation of instruction to the capacity of the learner, grouping of pupils into classes, and a reasonable time for recitation—can be conserved. But in a rural school with one teacher, to maintain one of these principles is to sacrifice another. The principle of the adaptation of instruction to capacity can be adhered to by dividing the pupils into eight grades of advancement; but such division gives a minimum time for recitation and a minimum association of pupils. If, however, pupils of the third and fourth, fifth and sixth, seventh and eighth years of advancement be grouped into three corresponding grades, we secure a longer time for recitation and a larger measure of association, but we violate the principle of adaptation of instruction to capacity, thus associating, in the same grade and class, pupils two years apart in their advancement. It thus appears that the problem of the most efficient instruction in a rural school with one teacher is one of maxima and minima. The principle of adaptation of instruction to capacity forever antagonizes the other two. A maximum adherence to it means a minimum adherence to the other two, and vice versa. Perfect adaptation of instruction to capacity would necessitate a grade for each pupil. Dr. Harris's report shows that he feels that, when pupils one year apart in advancement have been grouped in the same grade, this great principle of adaptation of instruction to capacity has been strained to its utmost limit, and that any sacrifice thereafter must come from other antagonistic and minor principles. His report throughout shows that he considers adaptation of instruction to capacity the paramount and controlling principle; and the fact that he has made this the burden of his report shows with what trained acumen he has brushed aside the trivial and subsidiary, and has laid grasp upon the vital and fundamental.

A still more universal principle underlies this valuable report. It is this: That the success of an institution of any kind—political, religious, economic, educational—depends upon its adaptation to its environment. A republic is, no doubt, abstractly the best form of government; but equally true is it that, under certain environment, an aristocracy or a monarchy is better than a republic. I take it, then, that Dr. Harris has been a spectator of this evolution of the rural school, with its peculiar environment, into the city graded school, with a very different environment, till he has said to himself, "This is a forced and artificial evolution." Having arrived at the conviction that the rural school with one teacher can not without injury be metamorphosed into a graded school, Dr. Harris addresses himself to the problem of changing the present rural school conditions, (1) through transportation of pupils and (2) through pupil-teachers. Now, this goes to the very heart of the question, for, through the transportation of pupils to central schools, the rural school conditions are transformed into city school conditions, and instruction can then proceed in harmony with the three principles above discussed. Or, if pupil-teachers are employed, or if the pupils of the higher grades—fifth, sixth, seventh, and eighth, or seventh and eighth only—be transported, the rural school condition will be in a measure removed and instruction can proceed more in harmony with these principles. It is true that transportation of pupils now seems practicable only in a small portion of the territory of the United States, and that pupil-teaching meets with but little favor among rural-school teachers and pupils; but a careful study of the report of Dr. Harris will no doubt lead to a larger use of pupil-teachers and a much wider extension of pupil transportation,

It, therefore, follows that the reorganization consequent upon transforming the four-teacher school into the one-teacher school would bring some pupils into classes better suited to their abilities than the classes to which the graded system had assigned them, thus bringing about a classification more in harmony with the principle of adaptation of instruction to the capacity of the learner. Classification and its correlative principle of harmonious development are the corner stone of the rural school; grading and its correlative principle of symmetrical development are equally fundamental to the city school. In a graded school the pupil is assigned to classes belonging to one grade only; in the country school he is assigned to classes adapted to his capacity, regardless of the number of grades represented by these classes. I institute no comparison here as to the relative merits of the principles—harmonious development and symmetrical development—but simply state the fact of their relations respectively to the city and rural schools.

If practical adaptation of instruction to the capacity of the pupil were really attainable in the graded school, I should hesitate to recommend a classification that would group in one class pupils more than a year apart in their advancement. But such adaptation is largely ideal and theoretical. However well the school be graded, the strongest pupils and the weakest are separated by a long distance in the character or grade of their work. Whether in the primary, the grammar, the high school, the college, or the university, a certain per cent of the students do most of the highest order of work. These strongest pupils discover and develop the deepest relations. The weaker pupils soon learn to repeat the stereotyped expressions of these relations, and to store them away in their memories to be fished forth at stated intervals by the written test. The Apostle Paul, that he might not offend his brother, would eat no more flesh while the world stood; but a large per cent of the students of all grades, not from fear of offending their brother, but from their very mental constitutions, abstain, with equal fidelity, from the strongest mental diet. I can select, at random, one-half the pupils from grades 6 and 7 of a city school, and put them to studying, indifferently, North America, South America, Europe, or Asia, and the former leaders in grades 6 and 7, respectively, will still lead. What is true of geography is true of history, civil government, physiology, spelling and reading, and, in a measure, of grammar and arithmetic. Certain pupils are mentally built for accuracy, clearness, depth, and power; others, for relative inaccuracy, obscurity, shallowness, and weakness. A rule requiring, as a condition of promotion, that all pupils of any certain grade should do as high an order of work as is being done by some of the pupils of that grade would virtually stop the wheels of promotion. Many of the pupils would never reach a higher grade; many others would do so only after repeated attempts and failures.

The gist of Dr. Harris's objection to grouping pupils who are more than a year apart in their advancement is that the more advanced pupils will be kept marking time, while the less advanced will be dragged along at an unnatural rate. My answer is that the stronger pupils will do the higher order of thinking, just as they always do, while the weaker pupils will do the lower order of thinking, as they always do, getting some knowledge from the books, some from the teacher, and some from their stronger classmates. The rural school has the advantage over the city school in that its pupils learn much from the recitation of classes to which they do not belong. In a graded school the walls of the schoolroom shut pupils out from what is being recited in other grades. In a rural school the pupil can listen to the recitation of any grade. You tell me that this is absorption, that the pupil gets this outside knowledge at the expense of the preparation of his own lessons, and that the practice of listening to other recitations militates against the principle that a great aim in education is to learn to master the printed page; but it is nevertheless the testimony of many of our greatest educators that the knowledge thus obtained by them in the country school was invaluable. The mind has

strange and subtle methods of threading its way to knowledge, not always in harmony with the pedagogue's theory. What teacher in arithmetic (who has had the courage, temporarily at least, to lay aside his cut and dried solution formulæ) has not been surprised and delighted at the ingenious methods different pupils have of solving problems? What master of the topical method in history, civil government, or literature has not marveled at the rich relations revealed by pupils when left free to take their own initiative? A nation does not postpone its entrance upon a career of republican government till all its members are ready for self-government. The members of a church are not of equal intellectual or spiritual caliber, nor are the members of a family; yet they are associated in one class—the state, the church, the family. In actual life, persons of all degrees of advancement behold alike the same procession of the heavens, the same succession of seasons, the same world happenings; but all do not get the same kind and amount of information from the marshaling of the constellations, the budding and fruiting of spring and summer, and the drama of events daily unfolding. I grant that the examples above given are not identical with the thing to be exemplified, but they present important elements of similarity. Finally, I am fully convinced that the rural school conditions necessitate a departure from the doctrine so ably laid down by Dr. Harris, and I believe principles can be found to justify such departure. Whether or not I have found these principles and set them forth in this supplementary report is another question.

L. E. WOLFE.

APPENDIXES.[1]

[1] The appendixes are not reprinted, but a list of them is here given for reference.

CHAPTER XVIII.

ENTRANCE REQUIREMENTS FOR ENGINEERING COLLEGES.

At the Buffalo meeting of the Society for the Promotion of Engineering Education, in August, 1896, the committee on entrance requirements of engineering colleges presented a report giving the results of their investigations.

The committee was composed of the following members: F. O. Marvin, Mansfield Merriman, J. P. Jackson, J. J. Flather, and H. W. Tyler.

In their report the committee adopted the following classification of colleges, which was not based upon the relative general merits or standing of the colleges, but had reference solely to their entrance requirements:

Class A. Those colleges whose requirements for admission include at least algebra through quadratics, plane geometry, solid geometry or plane trigonometry, one year of foreign language, and moderately high requirements in English. (31 colleges.)

Class B. Those colleges of the remaining list whose requirements include algebra through quadratics and plane geometry. (33 colleges.)

Class C. Those colleges whose requirements in mathematics are lower than algebra through quadratics and plane geometry. (25 colleges.)

Class D. Those colleges that offer no courses in engineering as such, but do work analogous to that of an engineering college, generally under the head of mechanic arts. Many of them will undoubtedly develop into genuine engineering colleges. A few of them now give engineering work in a fifth or post-graduate year. (18 colleges.)

Existing requirements.—The requirements for admission to the 89 colleges of Classes A, B, and C are given in the following table in detail for the purpose of showing their great range and variety. The data have been taken almost entirely from the catalogues of 1895, supplemented by information gained by the committee through circulars of inquiry and through correspondence.

Subjects required for admission by 89 colleges giving engineering courses and the number of colleges requiring each.

Subject.	Class A (31 colleges).			Class B (33 colleges).			Class C (25 colleges).			Total (89 colleges).		
	Required.	Not required.	Elective.	Required.	Not required.	Elective.	Required.	Not required.	Elective.	Required.	Not required.	Elective.
Evidence of morals	12	19	....	12	21	....	10	15	....	34	55	....
Age:												
14	....	12	....	2	19	....	....	9	....	2	40	....
15	2	....	....	3	....	....	9	....	....	14	....	....
16	14	....	....	8	....	....	6	....	....	28	....	....
17	2	....	....	1	....	....	1	....	....	4	....	....
18	1	....	....	....	....	....	....	....	....	1	....	....
Writing	....	31	....	1	32	....	4	21	....	5	84	....
Reading	....	31	....	3	30	....	5	20	....	8	81	....
Spelling	1	30	....	4	29	....	10	15	....	15	74	....
Geography	8	23	....	22	11	1	18	7	1	48	41	3
Arithmetic:												
To percentage	....	10	....	....	6	....	2	2	....	2	18	....
Complete	21	....	....	27	....	....	21	....	....	69	....	....
Algebra:												
Elements	....	....	....	....	....	....	20	3	....	20	3	....
Through quadratics	18	....	....	21	....	....	2	....	....	41	....	....
Advanced	10	....	2	11	....	1	....	....	1	21	....	4
Complete	3	....	2	1	....	....	....	....	....	4	....	2
Geometry:												
Less than five books	....	....	....	3	....	....	4	16	....	7	16	....
Plane or more	5	....	....	20	....	....	5	....	....	30	....	....
Complete	26	....	2	10	....	1	....	....	1	36	....	4
Trigonometry:												
Plane	9	20	3	2	31	1	....	25	....	11	76	4
Complete	2	....	1	....	....	....	....	....	....	2	....	1
Mensuration	1	....	....	1	....	....	....	....	....	2	....	....
Elementary mechanics	1	....	....	1	....	....	....	....	....	2	....	....
Higher mathematics	1	....	....	....	....	....	....	....	....	1	....	....
Drawing	6	25	3	5	28	1	....	25	....	11	78	4
Manual training or practice	1	....	....	1	....	....	....	....	....	2	....	....
History:												
United States	24	7	4	23	10	....	16	9	1	63	26	5
Local	1	17	....	2	18	....	1	21	....	4	56	....
English	4		4	2		1	1		....	7		5
General	5		2	7		3	3		....	15		5
Greek and Roman	4		5	3		....	....		1	7		6
Ancient	....		1	2		....	....		....	2		1
Modern	1		1	1		....	....		1	2		2
Civil government	4	....	1	3	....	1	....	....	....	7	....	2
Local government	1	....	....	....	....	....	....	....	....	1	....	....
General:												
Bookkeeping	1	....	....	2	....	1	....	....	....	3	....	1
Elocution	....	....	....	....	....	1	....	....	....	....	....	1
Mental science	....	....	1	....	....	1	....	....	....	....	....	2
Logic	....	....	....	1	....	....	....	....	....	1	....	....
Economics	1	....	....	....	....	1	....	....	....	1	....	1
Theory of teaching	....	....	1	....	....	1	....	....	....	....	....	2
Milu's Realm of Nature	1	....	....	....	....	....	....	....	....	1	....	....
Science:												
Physics	19	12	5	14	19	2	3	22	2	36	53	9
Physical laboratory	3	....	3	....	....	1	....	....	....	3	....	4
Chemistry	10	21	7	4	29	3	....	25	1	14	75	11
Chemical laboratory	1	....	2	....	....	1	....	....	....	1	....	3
Physical geography	11	20	3	8	25	4	8	17	1	27	62	8
Physiology	8	23	5	6	27	3	7	18	1	21	68	9
Botany	5	26	7	6	27	4	....	25	1	11	78	12
Zoology	1	....	5	....	....	2	....	....	1	1	....	8
Astronomy	1	....	4	1	....	2	....	....	....	2	....	6
Geology	2	....	3	....	....	....	....	....	....	2	....	3
Mineralogy	....	....	3	....	....	....	....	....	....	....	....	3
Meteorology	1	....	....	....	....	....	....	....	....	1	....	....
Natural history	....	....	....	1	....	....	....	....	....	1	....	....
Biology	....	....	1	....	....	....	....	....	....	....	....	1
Introduction to science	1	....	....	....	....	....	....	....	....	1	....	....
English:												
Grammar, analysis, bad English	18	13	....	25	8	....	22	3	....	65	24	....
Composition	3	....	....	10	....	....	11	....	....	24	65	....
Rhetoric	8	....	1	11	....	....	5	....	....	24	65	1
English literature	6	....	2	4	....	1	....	....	1	10	79	4
Classics—												
Less than 5	1	6	....	6	16	....	2	19	....	9	41	....
5 to 10	8		....	5		....	3		....	16		....
10 or more	16		....	6		....	1		....	23		....

Subjects required for admission by 89 colleges, etc.—Continued.

Subject.	Class A (31 colleges).			Class B (33 colleges).			Class C (25 colleges).			Total (89 colleges).		
	Required.	Not required.	Elective.	Required.	Not required.	Elective.	Required.	Not required.	Elective.	Required.	Not required.	Elective.
English—Continued.												
Essays—												
No limit	17	9	....	15	14	....	3	18	....	35	41	....
100 to 400 words	2	....	....	1	....	....	4	....	....	7		
More than 400	3	....	....	3	....	....	....	....	....	6		
3 years	1	....	....	....	....	....	....	....	....	1	....	....
Etymology	....	....	....	2	....	....	....	....	....	2	....	....
Latin elements	1	....	....	....	....	....	....	....	....	1	....	....
New England requirements, or nearly	14	....	....	5	....	....	....	....	....	19	....	....
Foreign languages	....	2	....	....	16	....	....	26	....	....	44	....
Spanish, 1 year	....	....	1	....	....	....	....	....	....	....	....	1
Spanish, 2 years	....	....	....	1	....	....	....	....	....	1	....	....
Greek	....	....	1	....	....	....	....	....	1	....	....	2
Latin	....	....	7	....	....	....	....	....	1	....	....	8
Latin, 2 years	....	....	....	2	....	....	....	....	....	2	....	....
French, 1 year	2	....	2	1	....	....	....	....	1	3	....	3
French, 2 years	1	....		1	....	....	....	....		2	....	
German	....	....	1	....	....	1	....	....	1	....	....	3
French 1 year or German 1 year	4	....	....	1	....	....	....	....	....	5	....	....
French 1 year and German 1 year	....	....	....	2	....	....	....	....	....	2	....	....
French 2 years or German 2 years	9	....	....	2	....	....	....	....	....	11	....	....
French 2 years and German 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, or German 1 year, or Latin 1 year	1	....	....	3	....	....	1	....	....	5	....	....
French 2 years, or German 2 years, or Latin 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, and German 1 year, and additional language 1 year	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, and German 1 year, and Latin 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 2 years, and German 1 year, and Latin 3 years	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, and German and science 1 year, or Latin 3 years	1	....	....	....	....	....	....	....	....	1	....	....
French or German or Latin 3 years, any combination	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, or German 1 year, and Latin 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 2 years, or German 2 years, and Latin 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 1 year, or German 1 year, or additional mathematics 1 year	1	....	....	....	....	....	....	....	....	1	....	....
French 2 years, or German 2 years, or Latin 2 years, or English 2 years	1	....	....	....	....	....	....	....	....	1	....	....
French 2 years, or German 2 years, or Latin 3 years, or Greek 2 years	1	....	....	....	....	....	....	....	....	1	....	....
German 3 years or Latin 3 years	....	....	....	1	....	....	....	....	....	1	....	....
German 1 year and German 2 years, or Latin 2 years, any combination	1	....	....	....	....	....	....	....	....	1	....	....
Latin 3 years and Greek 1 year	....	....	....	1	....	....	....	....	....	1	....	....
Latin, French, German, Greek, 2 years, any combination	1	....	....	....	....	....	....	....	....	1	....	....

Entrance examinations v. admission by certificate.—The following table gives the practice of 85 engineering colleges with regard to admission by certificates,[1] in lieu of examination:

Colleges which—	Class A.	Class B.	Class C.	Class D.	Total.
Do not accept certificates	6	2	2	2	12
Accept certificates to a small extent	3	5	2	2	12
Accept certificates to some undefined extent	5	10	8	2	25
Accept certificates to a large extent	14	13	8	1	36
Total					85

[1] In the original report the colleges in this connection are given by name in detail.

The replies to the inquiries of the committee tended to show that nearly every college is satisfied with its own plan of admission. The report goes on to say:

There are 21 colleges that seem to have fair regulations governing admission by certificate, though there are very few that publish their rules in detail or that have given them in detail to the committee if they exist. The University of California has one of the best and most complete systems. The scheme includes the following points, viz:

1. Application for accrediting to be on a special blank, showing the subjects on which the school seeks to be accredited, the names of teachers and the subjects taught by them, the number of pupils in each grade, length of school year and terms, etc., and accompanied by sets of actual examination papers and the course of study.

2. Visitation of school by a faculty committee, whose favorable report is essential.

3. Application for accrediting must be renewed annually. Inspection is annual also.

4. Schools are notified of being accredited on special blanks, showing the requirements for different university courses, the courses for which the school may prepare, and the subjects for which they can write certificates.

5. Certificate signed by the principal shows the graduation of the candidate, the list of subjects in each of which the principal recommends, and the course the candidate desires to enter.

6. Lack of above recommendation in any subject to be counted a failure.

7. More than two failures, or one failure and two conditions, or three conditions prevents admission.

8. Failure in algebra and geometry or physics and chemistry prevents admission.

9. Certificates are accepted by a committee, but can only be rejected by the academic council.

10. Besides above-mentioned blanks, the university issues departmental circulars as occasion arises containing suggestions as to preparatory work. Also an admission circular of 120 pages containing the following matter: A few pages of general information; extended description of all subjects included in any requirements; requirements for the different university courses; time, place, and order of entrance examinations; rules governing examinations; rules for accrediting schools; suggestions regarding preparation for the university; samples of questions previously used for entrance examinations.

11. The university holds conferences on secondary education with high schools and normal schools.

Professor Christy speaks well of the working of this system and says that it is the result of a good many years of persistent effort on the part of the university.

The University of Michigan has a similar plan, accrediting schools for three years, using four circulars. No. 1, the circular of instructions to the school applying. No. 2, the application showing enrollment, length of course and year, size of library, amount of apparatus and museum collections, character of laboratories, etc., also asking for further information concerning teachers, their length of service, where educated, subjects taught; concerning studies, the text used, the ground covered, time given in weeks and hours per week, and in what grade the subject is taught. No. 3, report of inspecting committee, including statistics of the school and its facilities, a statement of studies pursued, text-books used, time given, grade of work, an estimate of the efficiency of each teacher, and a recommendation that graduates be admitted to certain indicated university courses. The inspection may be made by others than members of the faculty, the university delegating its authority to some selected person or persons. No. 4, the certificate showing graduation and detailed list of subjects.

The School of Practical Science, at Toronto, admits the largest part of its stu-

dents on a government certificate to the effect that the candidate has passed the "high school leaving examination." In the Province of Ontario the government conducts these public school examinations.

In New York and adjacent States the certificates of the New York regents are taken by some colleges for the ground covered.

Not all of the 21 colleges mentioned above have as complete a method as California or Michigan, but they all require considerably more on the part of a school seeking to be accredited than the mere condition of "being satisfactory to the faculty."

In expressing an opinion as to the present working of the certificate plan, or its extension, many of the committee's correspondents are epigrammatic or answer its questions by a short yes or no. But one can gather from the general character of the replies that the objections raised are in many cases due to dissatisfaction, not so much with the present system as with its working, and that those favoring the system do so because of its applicability to existing conditions and its inherent advantages.

Uniformity of requirements.—The tabulation below gives a summary of the replies under this head:

Class.	A.	B.	C.	D.	Total.
Desirable to some extent	17	18	10	4	49
Not desirable	6	5	3	1	15
Practicable to some extent	8	14	4	2	28
Not practicable	8	9	13	2	32

The replies as a whole are quite decidedly favorable to the abstract idea of uniformity, though the belief in its practicability is not so general. Here again the answers, many of them, were confined to monosyllables or were given in more or less uncertain terms. This is a very natural result, because no definite plan of action was presented for consideration and because of a lack of practical experience with any scheme involving it.

General statement of principles.—Before the committee formulated its conclusions, attention was directed to certain general principles, some of which were assumed by the committee, while others form the basis of replies received. These principles and the conclusions of the committee are stated as follows:

1. In its circulars of inquiry the committee expressed its opinion that "preparation for scientific or other colleges is an essentially secondary function of the great body of high schools of the country, and that entrance requirements should be, so far as necessary, adapted to the capacity of any high school of thorough methods and high standards."

2. The primary object of entrance examinations or other requirements is to determine whether each candidate for admission has attained a certain standard, of development on the one hand, of information on the other, fitting him to undertake the work of the particular college in question.

3. The secondary effect of entrance requirements in particular subjects is a tendency on the part of teacher and candidate to concentration of effort on those subjects required, at the expense—perhaps to the neglect—of others. In particular cases this may even seriously deform the school curriculum. This consideration must not be overlooked in formulating a normal list of requirements.

4. The tendency of all examinations is to stimulate preparatory study, the degree of such stimulation varying widely according to circumstances, and requiring, as in case of any other stimulus, very careful control. For such control the colleges must depend in the main on the schools; unless it is exercised, the results of the examination are of relatively slight value. Certain teachers and certain schools

are notoriously able to prepare candidates who can pass entrance examinations, but do little afterwards.

5. The entrance examination at its best is a healthful stimulus especially to an indolent candidate; it presents to the schools an external, independent, concrete standard by which their work may be measured to the satisfaction of the ambitious and successful, to the confusion of the unworthy; it enforces upon school committees the need of strengthening weak points.

6. On the other hand, besides the danger noted under 4, the examination has certain serious defects as a test. Examiner and teacher are separated by a wall with more or less numerous loopholes, catalogue specifications, former examinations, etc. Too often the examiner's object is merely to select the best of these loopholes, that is to "coach"—not to educate—his candidate.

It is difficult to proportion the parts of an examination in accordance with the relative importance of the corresponding topics. It is difficult even to make the questions so clear that some applicants shall not totally misunderstand them.

It is difficult to judge applicants fairly—in some cases even to mark their examinations justly—without personal acquaintance. Some always do themselves more than justice, others less.

Last and most important, while an entrance examination may be an adequate and accurate test of an applicant's knowledge of particular subjects, it is an indirect criterion of general mental capacity on the one hand, and of specific aptitude for the kind of work in view on the other.

7. In consideration of these defects of the entrance examination system, many colleges substitute admission by certificate; many others attempt to strengthen their weak points by a combination of the two systems.

Some of the advantages of a good certificate system are these:

(*a*) It requires supervision and examination of the work of the school by the college or by some other central body, thus showing strength or weakness in the work directly.

(*b*) It gives the certificated school authoritative recognition which, if deserved, it ought to have.

(*c*) It keeps school and college in touch with each other.

(*d*) It substitutes for the information test of examinations the judgment of a teacher to whom the applicant is personally known. A good teacher must generally be a better judge of mental capacity and aptitude than the best examiner.

Familiar difficulties of the certificate system are:

(*a*) The difficulty of establishing and maintaining—by law, or by college cooperation—the necessary "supervision and examination" of school work.

(*b*) The extreme diversity of work in different parts of the country and State. The certificate system should tend to remedy this.

(*c*) The reluctance of college officers to deny or suspend the acceptance of certificates from poor schools.

(*d*) The reluctance of school officers to deny certification to unfit applicants.

8. The tendency of present diversity is to localize education unduly. It is generally difficult for a candidate to prepare for a college in some other, perhaps distant State, as easily as for one in his own.

CONCLUSIONS AND RECOMMENDATIONS.

1. *Uniformity of requirements.*—The committee regards absolute uniformity of requirements as entirely inconsistent with the diversity of educational conditions in different States, and as not in itself desirable. Each community, large or small, must work upward as it best can toward its own ideal. Variation is the basis of evolution.

Needless arbitrary deviations from uniformity in mere details are vexatious and harmful to all concerned and should be removed as soon as possible by cooperation between colleges and schools.

To secure such degree of uniformity as is practicable, the committee recommends the approval by this society of a definite list of entrance requirements somewhat as follows:

Mathematics.—Arithmetic (complete); algebra, elementary; algebra, through quadratics; algebra, advanced; geometry, plane; geometry, solid; trigonometry, plane.

Science.—Physical geography, botany, chemistry, physics.

Language.—English, French, German, Latin.

General.—Free-hand drawing, United States history, some second subject in history.

This list includes the requirements of nearly all of the colleges. From this list are excluded the scattering odds and ends, writing, reading, partial arithmetic, mensuration, elementary mechanics, higher mathematics, civil government, local government, bookkeeping, elocution, mental science, logic, economics, theory of teaching, Miln's Realm of Nature, zoology, astronomy, geology, mineralogy, meteorology, natural history, biology, introduction to science, etymology, Latin elements of English, Spanish, and Greek. This diversity has crept in to some extent, no doubt, through the attempt on the part of colleges to meet the varying courses of their contributory schools through a system of options in requirements, and possibly to make the scientific courses level up to the classical ones without the necessity of imposing the dead languages on the student. But the effect has been to scatter and to produce confusion on the one hand, and to limit each college to its own field of cultivated schools on the other.

What some of these subjects are doing as requirements for engineering courses, unless as temporary makeshifts, is not easily comprehended. There is enough within the above list, that so many colleges agree upon, to fully occupy the time of any boy in his four years in the high school, and there is variety enough to give breadth of training. There is work in the five chief lines of mathematics, language and literature, history, science, and art. Any school course, on the one hand, and any college set of requirements, on the other, ought to include all of these lines.

Again, while the colleges should confine themselves to the above subjects, there is nothing in the list that does not properly fit into the school curriculum. Laboratory work of the right kind in physics, chemistry, and botany may be found in comparatively few schools, but it ought to be given in all high schools with four-year courses for their own sakes, irrespective of the demands of scientific colleges.

Somewhat apart from the other subjects named, stands manual training, including shop work and mechanical drawing.

It is obviously impossible, even if desirable, to make either of these a requirement for admission to engineering colleges generally. On the other hand, the engineering colleges should be the first to recognize the true value of hand and eye work as a form of education. The committee believes that, so far as practicable, such recognition should be more generally shown by the acceptance of certified work in manual training as an optional requirement by institutions accepting any optional subjects. As previously stated there are only two engineering colleges that at present require manual training.

2. *What should be required.*—It is difficult to generalize, to the extent of laying down absolute requirements to which all colleges should conform. Yet, broadly speaking, there exist to-day two grades of engineering colleges whose work lies about one year apart. For the first of these the minimum requirements should include the following subjects: Algebra (advanced), plane and solid geometry, physics with laboratory work, chemistry with laboratory work, New England requirements in English, two years of foreign language, American history and some additional history, free-hand drawing.

For the second grade the minimum requirements should include: Algebra

through quadratics, plane geometry, physics,[1] English along the line of New England requirements but less in amount, one year of foreign language, American history, free-hand drawing.

Below these are colleges, like some of the colleges of architecture and mechanic arts, that are forced by the necessities of environment or the terms of their foundation to maintain low standards of admission and do in course what other colleges throw into requirements. These should insist on requiring as a minimum: Arithmetic (complete), elementary algebra, plane geometry, English along the line of New England requirements, but less in amount, American history.

Any lower requirements than these bring students into college before they have completed their courses in the lower schools. This works a double injustice, through lessening the force and prestige of the preparatory school and making it necessary for the college to do some of its work.

The differentiation here spoken of is not confined to the requirements, but is naturally apparent in the courses. These gradations in colleges are inevitable. They constitute one of the expressions of the varying conditions of life in the different communities and sections of this broad land. The sooner that this is frankly and freely admitted and acted upon, the better for American education. The older and higher grade colleges should recognize the value and dignity of the work of those that are newer or of lower grade, and on the basis of quality rather than grade.

On the other hand, the newer or lower grade colleges ought to recognize that the graduates of the colleges of higher grade are more evenly educated, more broadly cultured and better equipped for professional life than their own, and cease trying to bring about an apparent equality of grade. President S. P. McCrea, of the New Mexico College of Agriculture and Mechanic Arts, writes: "New Western colleges like this will be more concerned in securing advanced standing for their engineering students in the older and high-grade institutions, than in attempting to put their work on the same plane without respect to conditions. Can your committee do anything in this direction? If not, can a committee be appointed to deal with this matter?" The same spirit is manifested by correspondents from some other points.

8. *Admission by certificate.*—In the opinion of the committee, the advantages of the certificate system as already outlined, are fundamental, and its defects are to a great extent temporary and remediable with the general "leveling up" of secondary school work. Here absolute uniformity is not to be thought of. The more general observance of the following principles is of the highest importance:

(*a*) As the primary essential, personal visitation and inspection, on the part of the college, of the school asking a commission.

(*b*) This commission to be limited as to time and reissued only after reinspection, or on full knowledge of the condition of the school.

(*c*) The reservation of the right of the college to withdraw the commission for cause shown.

(*d*) Certificates to show in detail the extent of the ground covered and actual time spent in each subject and to contain the personal recommendation of the superintendent or principal.

(*e*) Students received on certificate to be required to make up any deficiency in preparation that may appear in any certificated subject.

(*f*) The college to cultivate friendly relations with its accredited schools and to make clear, through publications and conferences, just what its requirements are.

In the application of these principles each college would necessarily work out its own details, and under present conditions be obliged to do its own visiting and inspecting. But there is no reason why the colleges should not cooperate in this matter under suitable restrictions, the commissioning of a school by one, involving its acceptance by others.

[1] In the opinion of the committee the physics should include laboratory work.

CHAPTER XIX.

EARLY HISTORY OF THE KINDERGARTEN IN ST. LOUIS, MO.[1]

INDUSTRIAL EDUCATION—WHERE IT SHOULD BEGIN.

There has been for some time a popular clamor in favor of the introduction of the arts and trades into public schools. It has been supposed by self-styled "practical" writers upon education that the school should fit the youth for the practice of some vocation or calling. They would have the child learn a trade as well as reading, writing, and arithmetic; and the most zealous of them demand that it shall be a trade, and not much else. But the good sense of the educational world, as a whole, has not been moved to depart from the even tenor of its way, and has defended its preference for technical, conventional, and disciplinary training of a general character, useful for each and every one, no matter what his vocation shall be. Who can tell, on seeing the child, what special vocation he will best follow when he grows up? Besides this, the whole time of the child, so far as it can be had without overtasking him, is needed from the period of 6 or 7 years to 16 years in order to give him a proper amount of this training in technical, conventional, and disciplinary studies. Moreover, it is evident that these general studies are the keys to the world of nature and man, and that they transcend in value any special forms of skill, such as arts and trades, by as great a degree as the general law surpasses the particular instance. It is to be claimed that arithmetic, the science of numbers, for example, is indispensable in a thousand arts and sciences, while each art has much in it that is special and of limited application in the other arts.

But, on the other hand, analytical investigation has done much in the way of singling out from the physical movement involved in the trades those which are common and may be provided for by general disciplines of the body, which may be introduced into the school along with the science underlying the art. For example, the theory and practice of drawing involves arithmetic and geometry, and also the training of the hand and eye. Thus, drawing furnishes a kind of propædeutics to all of the arts and trades, and could not fail to make more skillful the workman, whatever his calling. Drawing, then, may properly enter the programme of all schools, having its claim acknowledged to be a general discipline.

FROEBEL'S "GIFTS"—THEIR RATIONALE.

But while we may acknowledge the transcendent importance of the regular branches for the period of time claimed by the school at present—namely, from the age of 6 to 16—it must be conceded that the age from 4 years to 6 years is not mature enough to receive profit from the studies of the school. The conventional and the disciplinary studies are too much for the powers of the child of 4 years or 5 years. But the child of 4 years or 5 years is in a period of transition out of the

[1] From the St. Louis Annual Report for 1878–79.

stage of education which we have named "nurture." He begins to learn of the outdoor life, of the occupations and ways of people beyond the family circle, and to long for a further acquaintance with them. He begins to demand society with others of his own age outside his family, and to repeat for himself, in miniature, the picture of the great world of civil society, mimicking it in his plays and games. Through play the child gains individuality; his internal—"subjective," as it is called—nature becomes active, and he learns to know his own tendencies and proclivities. Through caprice and arbitrariness, the child learns to have a will of his own and not to exercise a mere mechanical compliance with the will of his elders.

It is at this period of transition from the life in the family to that of the school that the kindergarten furnishes what is most desirable, and in doing so solves many problems hitherto found difficult of solution. The genius of Frœbel has provided a system of discipline and instruction which is wonderfully adapted to this stage of the child's growth, when he needs the gentleness of nurture and the rational order of the school in due admixture. The "gifts and occupations," as he calls them, furnish an initiation into the arts and sciences; and they do this in a manner half playful, half serious.

Of the twenty gifts which the kindergarten system offers, the first six form a group having the one object to familiarize the child with the elementary notions of geometry. He learns the forms of solids, the cube, sphere, and cylinder, and their various surfaces; also, divisions of the cube and combinations of the cube and its divisions in building various objects. He learns counting and measuring by the eye, for the cube and its divisions are made on a scale of an inch and fractions of an inch, and the squares into which the surface of his table is divided are square inches. Counting, adding, subtracting, and dividing the parts of the cube give him the elementary operations of arithmetic, so far as small numbers are concerned, and give him a very practical knowledge of them; for he can use his knowledge, and he has developed it, step by step, with his own activity.

It is always the desideratum in education to secure the maximum of self-activity in the pupil. The kindergarten gifts are the best instrumentalities ever devised for the purpose of educating young children through self-activity. Other devices may do this—other devices have done it—but Frœbel's apparatus is most successful. It is this fact that occasions the exaggerated estimate which his disciples place upon the originality of Frœbel's methods. Long before his day it was known and stated as the first principle of pedagogy that the pupil is educated, not by what others do for him, but by what he is led to do for himself. But Frœbel's system of gifts is so far in advance of the other systems of apparatus for primary instruction as to create an impression in the mind of the one who first studies it that Frœbel is the original discoverer of the pedagogical law of self-activity in the pupil. The teacher who has already learned correct methods of instruction, or who has read some in the history of pedagogy, knows this principle of self-activity, but has never found, outside of the kindergarten, so wonderful a system of devices for the proper education of the child of 5 years old.

The first group of gifts, including the first six of the twenty, as already remarked, takes up the forms of solids and their division, and therefore deals with forms and number of solids. The second group of gifts includes the four from the seventh to the tenth, and concerns surfaces, and leads up from the manipulation of thin blocks or tablets to drawing with a pencil on paper ruled in squares. In drawing, the child has reached the ideal representation of solids by means of light and shade—marks made on a surface to represent outlines. The intermediate gifts—the eighth and ninth—relate to stick-laying and ring-laying, representing outlines of objects by means of straight and curved sticks or wires. This, in itself, is a well-devised link between the quadrangular and triangular tablets (which are

treated only as surfaces) and the art of drawing. We have a complete transition from the tangible solid to the ideal representation of it.

Counting and the elementary operations in numbers continue through all the subsequent groups of gifts, but in the first group are the chief object. In the first group the solid, in its various shapes, is the object of study for the child. He learns to recognize and name the surfaces, corners, angles, etc., which bound it. In the second group the surface and its corners or angles become the sole object. But the child begins the second group with the surface represented by tablets, thin blocks, and proceeds to represent mere outlines by means of sticks or wire (in the eighth gift), and then to leave the solid form altogether and to make an ideal one by means of pencil marks on slate or paper (in the tenth gift). The slate or paper, ruled in squares of an inch, like the kindergarten tables, is the best device for training the muscles of the fingers and hand to accuracy. The untrained muscles of the hand of the child can not guide the pencil so as to make entire forms at first; but by the device of the ruled squares he is enabled to construct forms by the simple process of drawing straight lines, vertical, horizontal, and oblique, connecting the sides and corners of the ruled squares. The training of the eye and hand in the use of this tenth gift is the surest and most effective discipline ever invented for the purpose.

Here it becomes evident that if the school is to prepare especially for the arts and trades it is the kindergarten which is to accomplish the object, for the training of the muscles, if it is to be a training for special skill in manipulation, must be begun in early youth. As age advances, it becomes more difficult to acquire new phases of manual dexterity.

Two weeks' practice of holding objects in his right hand will make the infant, in his first year, right-handed for life. The muscles, yet in a pulpy consistency, are very easily set in any fixed direction. The child trained for one year on Frœbel's gifts and occupations will acquire a skillful use of his hands and a habit of accurate measurement of the eye which will be his possession for life.

But the arts and trades are provided for in a still more effective manner by the subsequent gifts. The first group, as we have seen, trains the eye and the sense of touch, and gives a technical acquaintance with solids and with the elementary operations of arithmetic. The second group frees him from the hard limits which have confined him to the reproduction of forms by mere solids, and enables him to represent by means of light and shade. His activity at each step becomes more purely creative as regards the production of forms and more rational as regards intellectual comprehension, for he ascends from concrete, particular, tangible objects to abstract general truths and archetypal forms.

The third group of gifts includes the eleventh and twelfth, and develops new forms of skill, less general and more practical. Having learned how to draw outlines of objects by the first ten gifts, the eleventh and twelfth gifts teach the pupil how to embroider; i. e., how to represent outlines of objects by means of needle and thread. The eleventh gift takes the first step, by teaching the use of the perforating needle. The child learns to represent outlines of forms by perforations in paper or cardboard. Then, in the twelfth gift, he learns the art of embroidering, and, of course, with this he learns the art of sewing and its manifold kindred arts. The art of embroidery calls into activity the muscles of the hand, and especially those of the fingers, the eye in accurate measurement, and the intellectual activities required in the geometrical and arithmetical processes involved in the work.

The fourth group of gifts (including the thirteenth to the eighteenth) introduces the important art of weaving and plaiting.

Among the primitive arts of man this was the most useful. It secures the maximum of lightness with the maximum of strength, by using fragile material

in such a manner as to convert the linear into the surface and combine the weak materials into the form of mutual firm support.

The thirteenth gift (with which the fourth group begins) teaches how to cut the paper into strips; the fourteenth weaves the strips into mats or baskets, with figures of various devices formed by the meshes; the fifteenth gift uses thin slats of wood for plaiting, and the sixteenth uses the same, jointed, with a view to reproducing forms of surfaces; the seventeenth gift intertwines paper, and the eighteenth constructs elaborate shapes by folding paper. This group constructs surfaces by the methods of combining strips or linear material. Vessels of capacity (baskets, sieves, nets, etc.), clothing (of woven cloth), and shelter (tents, etc.) are furnished by branches of this art.

Wood is linear in its structure, and stronger in the direction of the grain of the wood. Hence it became necessary to invent a mode of adding lateral strength by crossing the fibers, in the form of weaving or plaiting, in order to secure the maximum of strength with the minimum of bulk and weight. Besides wood, there are various forms of flexible plants (the willow, etc.) and textile fibers (hemp, flax, cotton, etc.) which can not be utilized except in this manner, having longitudinal but not lateral cohesion.

In the fourth group of gifts the industrial direction of the work of the kindergarten becomes the most pronounced. There is more of practical value and less of theoretic value in its series of six gifts (thirteenth to eighteenth). But its disciplines are still general ones, like drawing, and furnish a necessary training for the hands and eyes of all who will labor for a livelihood; and, besides these, for all who will practice elegant employments for relaxation (ladies' embroidery), or athletic sports and amusements (the games and amusements that test accuracy of hand and eye, or mathematical combination, marksmanship, hunting, fishing, ball playing, archery, quoits, bowling, chess playing, etc.).

The fifth group, including the nineteenth and twentieth gifts, teaches the production of solid forms, as the fourth teaches the production of surfaces from the linear. The nineteenth, using corks (or peas soaked in water) and pieces of wire or sticks of various lengths and pointed ends, imitates various real objects and geometrical solids by producing their outlines, edges, or sections. This gift, too, furnishes the preparation for drawing in perspective. The twentieth and last gift uses some modeling material (potter's clay, beeswax, or other plastic substance), and teaches modeling of solid objects. This group of gifts is propædeutic to the greater part of the culinary arts, so far as they give shape to articles of food. It also prepares for the various arts of the foundry—casting or modeling—of the pottery, etc., and the fine arts of sculpture and the preparation of architectural ornament.

In the common school, drawing, which has obtained only a recent and precarious foothold in our course of study, is the only branch which is intended to cultivate skill in the hand and accuracy in the eye. The kindergarten, on the other hand, develops this by all of its groups of gifts.

Not only is this training of great importance by reason of the fact that most children must depend largely upon manual skill for their future livelihood, but, from a broader point of view, we must value skill as the great potence which is emancipating the human race from drudgery by the aid of machinery. Inventions will free man from thralldom to time and space.

By reason of the fact, already adverted to, that a short training of certain muscles of the infant will be followed by the continued growth of the same muscles through his after life, it is clear how it is that the two years of the child's life (his fifth and sixth), or even one year, or a half year, in the kindergarten will start into development activities of muscle and brain which will secure deftness and delicacy of industrial power in all after life. The rationale of this is found in the fact that it is a pleasure to use muscles already inured to use; in fact, a

much-used muscle demands a daily exercise as much as the stomach demands food. But an unused muscle, or the mere rudiment of a muscle that has never been used, gives pain on its first exercise. Its contraction is accompanied with laceration of tissue, and followed by lameness, or by distress on using it again. Hence it happens that the body shrinks from employing an unused muscle, but, on the contrary, demands the frequent exercise of muscles already trained to use. Hence in a thousand ways, unconscious to ourselves, we manage to exercise daily whatever muscles we have already trained, and thus keep in practice physical aptitudes for skill in any direction.

The carriage of a man who appears awkward to us is so because of the fact that he uses only a few muscles of his body, and holds the others under constraint, as though he possessed no power to use them. Freedom of body, which we term gracefulness, is manifested in the complete command of every limb by the will. This is the element of beauty in the Greek statuary. The gymnastic training may be easily recognized in a young man by his free carriage. As he moves he uses a greater variety of muscles than the man of uncultivated physique. It follows that a muscle once trained to activity keeps itself in training, or even adds by degrees to its development, simply by demanding its daily exercise, and securing it by some additional movement which it has added as subsidiary to activities in which other muscles are chiefly concerned. In his manner of sitting or rising, of walking or running, even of breathing, of writing, or reading, one man varies from another through the use or disuse of subsidiary muscles, thus kept in training or allowed to remain as undeveloped rudiments.

I have, in this protracted discussion of the significance of Frœbel's gifts as a preparation for industrial life, indicated my own grounds for believing that the kindergarten is worthy of a place in the common-school system. It should be a sort of subprimary education, and receive the pupil at the age of 4 or 4½ years, and hold him until he completes his sixth year. By this means we gain the child for one or two years when he is good for nothing else but education, and not of much value even for the education of the school as it is and has been. The disciplines of reading and writing, geography and arithmetic, as taught in the ordinary primary school, are beyond the powers of the average child not yet entered upon his seventh year. And beyond the seventh year the time of the child is too valuable to use it for other than general disciplines—reading, writing, arithmetic, etc., and drawing. He must not take up his school time with learning a handicraft.

The kindergarten utilizes a period of the child's life for preparation for the arts and trades, without robbing the school of a portion of its needed time.

Besides the industrial phase of the subject, which is pertinent here, we may take note of another one that bears indirectly on the side of productive industry, but has a much wider bearing. At the age of 3 years the child begins to emerge from the circumscribed life of the family, and to acquire an interest in the life of society, and a proclivity to form relationship with it. This increases until the school period begins, at his seventh year. The fourth, fifth, and sixth years are years of transition, not well provided for either by family life or by social life in the United States. In families of great poverty, the child forms evil associations on the street, and is initiated into crime. By the time he is ready to enter the school he is hardened in vicious habits, beyond the power of the school to eradicate. In families of wealth, the custom is to intrust the care of the child in this period of his life to some servant without pedagogical skill, and generally without strength of will power. The child of wealthy parents usually inherits the superior directive power of the parents, who have by their energy acquired and preserved the wealth. Its manifestation in the child is not reasonable, considerate will power, but arbitrariness and self-will—with such a degree of stubbornness that it quite overcomes the much feebler native will of the servant who has charge of the children. It is difficult to tell which class (poor or rich) the kindergarten

benefits most. Society is benefited by the substitution of a rational training of the child's will during his transition period. If he is a child of poverty, he is saved by the good associations and the industrial and intellectual training that he gets. If he is a child of wealth, he is saved by the kindergarten from ruin through self-indulgence and the corruption ensuing on weak management in the family. The worst elements in the community are the corrupted and ruined men who were once youth of unusual directive power—children of parents of strong wills.

The kindergarten will give the physical aptitude for manual skill. After the common-school education is finished, the "manual-training school" will complete the preparation for a trade. In the "school shops," as the manual-training schools are sometimes called, the pupil learns how to use the various tools which belong to most of the industries—the ax, saw, plane, auger, hammer, square, chisel, and file. There are very many tools, but they are for the most part only applications of these few instruments.

Cost of Tuition in the Kindergarten.

The total amount of salaries in this department for the 131 paid teachers was $21,860; average number of pupils belonging in the kindergartens was 3,841, making the average cost per pupil $5.70; cost for each of the 6,202 pupils enrolled, $3.52.

The salaries paid have been much reduced.

	First year.	Second year.	Third year.	Fourth year.	Fifth year.
For whole day, director	$450.00	$475.00	$500.00	$550.00	$600.00
For half day, director	250.00	275.00	300.00	325.00	350.00
For whole day, paid assistant	200.00	.....	.....	.....	.....
For half day, paid assistant	125.00	.....	.....	.....	.....

The cost of tuition in the kindergarten for 1875–76 was, for each pupil belonging, $11.36; for each pupil enrolled, $5.76. For 1876–77, for each pupil belonging, $9; for each pupil enrolled, $4.05.

This shows a constant reduction in the cost of instruction in the kindergarten, and forms a very important consideration in the question of the introduction or continuance of the kindergarten in the public-school system.

The average cost of tuition in all the schools is $16.73 for each pupil belonging, and $11.78 for each pupil enrolled in the course of the year.

In my report for 1875–76 I have discussed the several questions relative to the course of study and management of the kindergarten, and in my report for 1876–77 I have given extended statistics as to results.

As the kindergarten has now been in operation for six years, and on a very extended scale, the time has arrived when the subject may be discussed in the light of experience, and satisfactory conclusions reached as to the advisability of continuing and extending the system thus far developed.

The history of the establishment of the kindergarten with us is perhaps of sufficient interest to be rehearsed here.

1. From the report of the superintendent for 1870–71:

The average duration of the school life of a child in manufacturing districts is only three entire years. Commencing at the age of 7, he completes his school education at 10. If he could be properly cared for in school at 5 years of age his school life would last five years. This period would suffice to make a durable impression on his life.

The exclusion of pupils under 7 years of age, to which I have alluded in previous reports, still continues, but not to such an extent as formerly. In certain sections of the city where the influences are corrupting to the children, they being obliged

to play on the street, it is decidedly better to have them in school at an early age, and to so far modify the tasks imposed on them as to prevent overstraining their delicate organisms. The kindergarten system of culture for the young is justly receiving much attention from educators everywhere. To it we must look for valuable hints on the method of conducting our instruction in the lowest primary grades.

The establishment of an experimental kindergarten was accordingly recommended. It got no further, however, than the experiment made at the Everett Primary School, wherein some of the features of the kindergarten were adopted.

2. Colonel Rombauer introduced a resolution, in November, 1871, into the board, appointing a committee for a report on "play schools."

This committee reported March 12, 1872, as follows (the report being laid over):

REPORT OF COMMITTEE ON PLAY SCHOOLS.

To the President and Board of Directors of St. Louis Public Schools:

An investigation into the merits of play schools, their practical operation in other places, and the earnest enthusiasm of all supporters of their institution, has convinced your committee that our public-school system can no doubt be improved in that direction. However, though highly recommended, the play school has nowhere found a general application. An institution of this description, under the direction of Prof. A. Douai, of Newark, N. J., is the only one which enjoys the direct support of the public-school authorities. This play school is in a flourishing condition, and the subsequent success of its pupils in the district schools is stated to be most satisfactory, as these pupils are almost invariably at the head of their classes.

While a great many children do not enjoy the advantages of the supervision and guidance of parents whose intellectual culture, pecuniary means, and business relations would permit to give the necessary time, or to secure playgrounds, playmates, and playthings which would invite the full bodily and mental activity of the child, institutions which, by association and combination of means, can secure these desired facilities must be highly commendable.

From the reviewed and digested experience of others, your committee has come to the conclusion that an educational institution preceding the day education of the district schools, dealing with children at the tender age when they are most susceptible for lasting impressions, should try to attain, besides its negative benefits, the following positive objects:

1. To develop the individuality of the child sufficiently that the same should not be obliterated by subsequent class education.
2. To shape its character, and train it to perseverance, strength, and mental vigor.
3. To elicit talents, independent action, and leading tendencies of mind, by giving them the opportunity of, and by inviting, their expression.
4. To acquaint the child with nature and its forces through play.
5. To lead the child to habits of order, classification, and system.
6. To give the child a taste for beauty as the best safeguard against vice.
7. To give the child ample exercise and the surroundings of health.

The above objects can be advanced to no inconsiderable extent by the institution of play schools, and this influence will aid our district-school system beyond expectation. However, no definite method in their administrations and no definite system in their organization has yet been arrived at. For this reason a practical test of the system in our own midst, and under the supervision of the board and its officers, would appear to be most desirable. It should be also ascertained whether there is an actual demand for an institution of that kind in our community.

In one sense the whole of life is an education, for man is a being that constantly develops—for good or evil. In every epoch of his life an education goes on. There are well-defined epochs of growth or of education; that of infancy, in which education is chiefly that of use and want, the formation of habits as regards the care of the person, and the conduct within family life; that of youth, wherein the child learns in the school how to handle those instrumentalities which enable him to participate in the intellectual or theoretical acquisitions of the human race, and wherein, at the same time, he learns those habits of industry, regularity and punctuality, and self-control, which enable him to combine with his fellow-men

in civil society and in the State; then there is that education which follows the period of school education—the education which one gets by the apprenticeship to a vocation or calling in life. Other spheres of education are the State, or body politic, and its relation to the individual, wherein the latter acts as a citizen, making laws through his elected representatives, and assisting in their execution; the church, wherein he learns to see all things under the form of eternity, and to derive thence the ultimate standards of his theory and practice in life.

Before Miss Blow's experiment in the Des Peres School the kindergarten was only a vague dream in the St. Louis schools. Since that time the following has been the progress:

Year.	Number of kindergartens.			Number of teachers.			Number of pupils enrolled.			Average number belonging.
	Forenoon.	Afternoon.	Total.	Paid.	Unpaid.	Total.	Boys.	Girls.	Total.	
1873-74	1	-------	1	1	3	4	30	38	68	42
1874-75	3	1	4	4	13	17	130	141	271	138
1875-76	7	5	12	12	38	50	533	508	1,041	528
1876-77	16	14	30	32	150	182	1,506	1,827	3,333	1,502
1877-78	22	18	40	60	139	199	2,407	2,952	5,359	1,469
1878-79	27	26	53	131	65	196	3,845	3,357	6,202	3,843

CLAIM OF THE KINDERGARTEN FOR A PLACE IN THE PUBLIC-SCHOOL SYSTEM.

The question of the kindergarten can not be settled without considering many subordinate questions.

Your committee therefore recommend to aid such an institution with means, provided citizens taking an interest in similar educational institutions will give a practical expression to such interest by also aiding the same with their private means.

Your committee therefore recommend the adoption of the following resolutions:

1. That $1,000 are hereby appropriated for the institution of a play school, provided private citizens furnish a similar amount for the same purpose.
2. That the institution and the funds created as above shall be under the control of the president, superintendent, and chairman of the teachers' committee of the board.
3. That the objects of that school shall be the same as expressed in this report.
4. That admission to said play school shall be free.
5. That the citizens contributing to the establishment of that play school may select its locality, and elect an advisory committee for its management.
6. That the superintendent of the public schools shall report from time to time upon its condition and progress.

ROBT. J. ROMBAUER.
W. DŒNCH.
THOMAS RICHESON.

3. From superintendent's report for 1871-72:

From his third year, the child begins to widen the sphere of his activity so much as to extend it beyond the family influence. Through play he comes in contact with children of other families; and soon after this commences he needs the counterbalancing influences of the school. Through contact with other children in play—especially where, as happens in cities, the street is the place of this association—his will develops powerfully, and something more is needed for its control than the mere family nurture.

The régime of the school (more general than that of the family) is needed to prevent arbitrariness and caprice, and to secure the growth of proper respect for elders, and for moral and civil ordinances. That threefold reverence which Goethe speaks of as the basis of all higher life—reverence for superiors, for equals, and for inferiors—is very difficult to inculcate if the child remains too long under family influence, without the training of the school. School discipline is found to be far more potent when applied at the age of 5 than at the age of 8 years.

I hope another year will witness the formation of a sufficient number of small

primary schools—founded more or less on the kindergarten plan—to accommodate all of the localities situated near the river and in our manufacturing districts. A genuine kindergarten, as an experiment, would furnish additional hints to our teachers and suggestions to the board, enough to doubly repay the cost of its support.

4. From superintendent's report for 1872-73:

We do not look so much to the gain in intellectual possessions as to the training of the will into correct habits during the years previous to the seventh. After his third year the child becomes social, and hungers for companionship. In the school he can secure this with less danger to him than on the street. Such careful training in habits of regularity, punctuality, industry, cleanliness, self-control, and politeness as are given in the ordinary primary school and still more efficiently in the well-conducted kindergarten, are of priceless benefit to the community. They lessen the number of rough, ungovernable youths, whose excesses are the menace of the peace of society.

The offer of Miss Susie E. Blow to undertake gratuitously the instruction of one teacher appointed by the board, and to supervise and manage a kindergarten, provided the board would furnish the rooms and a salaried teacher, was accepted; and in the report of the teachers' committee, August 26, 1873, it was recommended—

That room No. 4 of the Des Peres School be devoted for the present year to the purpose of ascertaining, by a faithful experiment, what valuable features the kindergarten may have that can be utilized in our primary schools; and, for this purpose, that Miss Mary A. Timberlake be assigned to this room, with rank of first assistant; and that Miss Susie E. Blow, having proffered her services gratuitously, the same be accepted, and the school be placed under her control and supervision.

EBER PEACOCK,
CHAS. F. MEYER.
WM. C. WILSON,
FELIX COSTE,
J. W. SHOCKEY,
GEO. T. MURPHY,
Teachers' Committee.

The question of the kindergarten also involves, besides this one of province—i. e., the question whether there is a place for it—the consideration of its disciplines, or what it accomplishes in the way of theoretical insight or of practical will power; these two, and the development of the emotional nature of the human being. Exactly what does the kindergarten attempt to do in these directions? And then, after the what it does is ascertained, arises the question whether it is desirable to attempt such instruction in the school; whether it does not take the place of more desirable training, which the school has all along been furnishing; or whether it does not, on the other hand, trench on the province of the education within the family, a period of nature wherein the pupil gets most of his internal or subjective emotional life developed? If the kindergarten takes the child too soon from the family and abridges the period of nature, it must perforce injure his character on the whole; for the period of nurture is like the root life of the plant, essential for the development of the above-ground life of the plant, essential for the public life of the man, the life wherein he combines with his fellow-men.

Then, again, there is involved the question of education for vocation in life—the preparation for the arts and trades that are to follow school life—as the third epoch in life education. Should the education into the technicalities of vocations be carried down into the school life of the pupil; still more, should it be carried down into the earliest period of transition from the nurture period to the school period?

Besides these essential questions, there are many others of a subsidiary nature—those relating to expense, to the training of teachers and their supply, to the ability of public-school boards to manage such institutions, to the proper buildings

for their use, the proper length of sessions, the degree of strictness of discipline to be preserved, etc. The former essential questions relate to the desirability of kindergarten education; the latter relate to the practicability of securing it.

The most enthusiastic advocates of the kindergarten offer, as grounds for its establishment, such claims for its efficiency as might reasonably be claimed only for the totality of human education, in its five-fold aspect—of nurture, school vocation, State, and church. If what they claim for it were met with as actual results, we certainly should realize the fairest ideals of a perfected type of humanity at once. Such claims, however, can be made only of a lifelong education in its five-fold aspect, and not of any possible education which lasts only from one to four years in the life of the individual. Notwithstanding this exaggeration, it may prove to be the case that the kindergarten is justified in claiming a province heretofore unoccupied by the school or by family nurture, and a province which is of the utmost importance to the right development of those phases of life which follow it. It is, indeed, no reproach to the friends of the "new education" (as they call it) to accuse them of exaggeration. The only fault which we may charge them with is a tendency to ignore or underrate the educational possibilities of the other provinces of human life, and especially those of the school as it has hitherto existed.[1]

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[1] To illustrate the breadth of view which the advocates of the kindergarten entertain in regard to the theory and practical value of the kindergarten, I quote here a statement of its rationale furnished me by Miss Elizabeth Peabody, justly considered the leading advocate for the new education in this country:

"The rationale of Froebel's method of education is only to be given by a statement of the eternal laws which organize human nature on the one side and the material universe on the other.

"Human nature and the material universe are related contrasts, which it is the personal life of every human being to unify. Material nature is the unconscious manifestation of God, and includes the human body, with which man finds himself in relation so vital that he takes part in perfecting it by means of the organs; and this part of nature is the only part of nature which can be said to be dominated vitally by man, who, in the instance of Jesus Christ, so purified it by never violating any law of human nature—which (human nature) is God's intentional revelation of Himself to each—that He seems to have had complete dominion, and could make Himself visible or invisible at will; transfiguring His natural body by His spiritual body, as on the Mount of Transfiguration; or consuming it utterly, as on the Mount of Ascension. Whether man, in this atmosphere, will ever do this, and thus abolish natural death, or not, there is no doubt there will be infinite approximation to this glorification of humanity in proportion as education does justice to the children, as Froebel's education aims to do it; for it is his principle to lead children to educate themselves from the beginning—like Socrates's demon—forbidding the wrong and leaving the self-activity free to goodness and truth, which it is destined to pursue forever and ever."

A writer in the Canadian School Journal gives utterance to the following estimate of the value of kindergartens:

"Graduated from a true kindergarten, a child rejoices in an individual self-poise and power which makes his own skill and judgment important factors of his future progress. He is not like every other child who has been in his class; he is himself. His own genius, whatever it may be, has had room for growth and encouragement to express itself. He therefore sees some object in his study, some purpose in his effort. Everything in his course has been illuminated by the same informing thought; and, therefore, with the attraction that must spring up in the young mind from the use of material objects in his work, instead of a weariness, his way has been marked at every step by a buoyant happiness and an eager interest. Any system that produces such results is educationally a good system. But when you add that all this has been done so naturally and so judiciously that the child has derived as much physical as mental advantage, and an equally wholesome moral development, who can deny that it is superior to any other yet devised or used, and that, as such, it is the inalienable birthright of every child to be given the advantages of its training? * * * Before the time of Froebel, the science of pedagogics was founded upon abstruse thought, although sometimes introducing—as in the various object systems—the concrete form as a means of education; but Froebel, by a Divine inspiration, laid aside his books, wherein theory mystified theory, and studied the child.

"He said, God will indicate to us in the native instincts of His creature the best method for its development and governance. He watched the child at its play and at its work. He saw that it was open to impressions from every direction; that its energies were manifested by unceasing

The disciples of Froebel everywhere see the world in this way. With them the theory of the kindergarten is the theory of the world of man and nature. Froebel himself was as much a religious (or moral) enthusiast as a pedagogical reformer. The moral regeneration of the race is the inspiring ideal which his followers aim to realize.

I do not disparage this lofty ideal; it is the ideal which every teacher should cherish. No other one is a worthy one for the teacher of youth! But I think that any gifted teacher in our district schools, our high schools, or our colleges may, as reasonably as the teacher of the kindergarten, have this lofty expectation of the moral regeneration of the race to follow from his teachings. If the child is more susceptible at the early age when he enters the kindergarten, and it is far easier then to mold his personal habits, his physical strength and skill, and his demeanor toward his equals and his superiors, yet, on the other hand, the high-school teacher or the college professor comes into relation with him when he has begun to demand for himself an explanation of the problem of life, and it is possible, for the first time, at this age to lead him to insight—the immediate philosophical view of the universality and necessity of principles.

Insight is the faculty of highest principles, and of course more important than all other theoretical disciplines. It is therefore probable that the opportunity of the teacher who instructs pupils at the age of 16 years and upward is, on an average, more precious for the welfare of the individual than that of the teacher whose pupils are under 6 years. This advantage, however, the teacher of the youngest pupils has, that she may give them an influence that will cause them to continue their education in after life. The primary school, with its four years' course, usually enrolls five pupils where the grammar school, with a course of four years, enrolls only one pupil. The importance of the primary school is seen in the fact that it affects a much larger proportion of the inhabitants of a community, while the importance of the high school rests on the fact that its education develops insight and directive power, so that its graduates do most of the thinking and planning that is done for the community.

But there are special disciplines which the child of 5 years may receive profitably that the youth of 16 would not find sufficiently productive. I have already discussed, under the topic of Evening Schools, the industrial training that the kindergarten furnishes. With the author's permission, I make the following extracts from an admirable (unpublished) lecture by Miss Susan E. Blow—to whom our kindergartens are so deeply indebted—on the subject of the several phases of the kindergarten education which form its distinctive features of contrast with other education:

THE EDUCATIONAL VALUE OF THE GIFTS AND OCCUPATIONS.

Let a child try to fashion his lump of clay into a bird's nest, and, though his effort yield no other result, it will certainly lead him to examine carefully the next bird's nest he sees. Let him make an apple and a pear, and he must feel their difference in form as he would never have done had he simply looked at the two

curiosity and unceasing restlessness; that, if left to itself, the impossibility of reaching any satisfactory conclusions in its researches little by little stifled its interest; the eager desire to explore deeply the world of ideas and objects before him passed into a superficial observation, heeding little and sure of nothing. He saw that the law which made it flit from object to object in this unceasing motion was a law of development implanted by God, and therefore good; but that, unless it were directed and given aim and purpose, it became an element of mischief as well. Then what could be done? How was the possible angel to be developed and the possible devil to be defeated? Froebel said: 'If we take God's own way, we must be right; so let us direct into a systematic but natural course of employment all these tender fancies, these fearless little hands and feet, and these precious little eager souls; and then we shall work with the divine love and intelligence and it with us, and our children shall find the good and avoid the evil.' Then year was added to year of thought and study and practice, until he gave his system to the world in its present completed form."

fruits. Let him attempt to lay with his sticks the outline of a house, and his attention can not fail to be caught by facts of direction and proportion. Let him apply numbers in weaving, and their relations grow interesting to him. Lead him to construct symmetrical figures, and he must feel the laws of symmetry. Teach him rhythmic movements, and he must recognize rhythm. All things are revealed in the doing, and productive activity both enlightens and develops the mind.

It has always been a difficult problem to strike the balance between knowledge and power. The mind is not a sponge, nor is education the absorption of facts. On the other hand, nothing is more dangerous than energy uncontrolled by knowledge and insight. The mind, like the stomach, suffers from overloading, yet both need constant food. The test of healthy assimilation is increasing strength, and we know we are supplying the mind with the right kind and amount of food if we notice a gain in vigor and originality. The child's intense play is nature's effort to order the thronging impressions of the first years of life, and the kindergarten simply follows nature in alternating receptive and creative activities and in constantly registering the results of perception in reproduction.

In an age so analytical and scientific as our own, the kindergarten has a special value. Scientific methods need to be supplemented in education by artistic processes. The scientist, beginning with the embodied fact, seeks its relations and its causes; the thought of the artist is the final cause of the statue, the painting, or the poem. The scientist, "handicapped by fact and riveted to matter," struggles painfully toward the spiritual, while before the artist the invisible is constantly shaping the visible and the eternal declaring itself in the transitory. The restless scientist strives to order a bewildering variety; the artist instinctively realizes the unity from which variety is evolved, and feels the soul of the whole animating each particular part. We prepare the children for spiritual insight when we lead them to create.

Again, the representative system is death to superficiality and self-conceit. The child's imperfect results teach him humility, and stir him to fresh effort. He is constantly testing his perceptions by production, and measuring himself by his attainment. He learns that what he can use is his; that only what he consciously holds he truly possesses. He finds out in what directions he can best work, and transforms uncomprehended tendency into definite character. He advances, on the one hand, from perception to conception, from conception to reproduction, from reproduction to definition; and, on the other, from an instinctive to a self-directing activity, and from this to self-knowledge and self-control. Thus, by the same process, he unlocks creation and realizes in himself the image of his Creator.

The order of the kindergarten gifts follows the order of mental evolution: and at each stage of the child's growth, Froebel presents him with his "objective counterpart." "The child," he says, "develops, like all things, according to laws as simple as they are imperative. Of these, the simplest and most imperative is: That force existing must exert itself; exerting itself, it grows strong; strengthening, it unfolds; unfolding, it represents and creates; representing and creating, it lifts itself to consciousness and culminates in insight." This perception of the course of development determines his idea of the stages of early education. It should aim, first, to strengthen the senses and muscles, conceived as the tools of the spirit; second, to prepare for work by technical training, and to aid self-expression by supplying objects which, through their indefiniteness, may be made widely representative; third, to provide material adapted to the conscious production of definite things, and diminish the suggestiveness of this material in direct ratio to the increase of creative power; and, fourth, by analysis of the objects produced, and the method of their production, lift the child to conscious communion with his own thought. The first stage of this educational process is realized through the songs for mother and child; the second, through the kindergarten games, the simpler occupations, and the first two gifts; the third, through the exercises with blocks, tablets, slats, sticks, and rings, and the work in drawing, folding, cutting, peas work, and modeling; and the fourth, through the wise appeal of the kindergartener to the thought of the child, as she leads him slowly from the what to the how, and from the how to the why and wherefore of his own action.

The definitely productive exercises begin with the third gift. Froebel contends that the proverbial destructiveness of children is a perversion of the faculties of investigation and construction, and that the broken toys strewn over our nursery floors express the mind's impatient protest against finished and complicated things. Unable to rest in externals, the child breaks his toys to find out "what is inside," and, scornful of what makes no appeal to his activity, he turns from the most elegant playthings to the crude results of his own manufacture. What he wants

is, not something made for him, but material to make something himself. What he needs is an object which he can take to pieces without destroying, and through which he can gratify his instinct to transform and to reconstruct.

At the same time, the possibilities of the object must not be too varied, and it must be suggestive through its limitations. The young mind may be as easily crushed by excess as it is paralyzed by defect. Hence Froebel's choice of a cube divided into eight smaller cubes. It is easily separated into its elements, and easily reconstructed. It is capable of a reasonable number of transformations, and its crude resemblances satisfy the child's crude thought. It offers no variety of form to confuse his mind, but rigidly confines him to vertical and horizontal, to the right angle and the square. Moreover, he can scarcely arrange his blocks in any way without their taking forms which will suggest some object he has seen. If he piles them one above the other, a word from mother or kindergartener enables him to see in the unsought result of his doings a tower, a light-house, or a lamp-post. If he arranges them side by side, he is confronted with a wall; if in two parallel rows, behold the railroad. The change of a single block transforms the railroad into a train of cars; and, with another movement, the cars vanish in a house. Having, as it were, reached these results accidentally, the child next directly aims to reproduce them; and thus, through the suggestiveness of his material, is helped from an instinctive to a self-directing activity, and from simple energy to definite production. This point once attained, he triumphs over more and more complicated material, and constrains an ever-increasing variety of elements to obey his thought. With planes and sticks he advances to surface representation, and prepares the way for drawing, and finally begins, of himself, to form letters and to spell out the names of familiar things.

His progress, like that of the race, moves thus from the concrete to the abstract, from the fact to the picture, and from the picture to the sign. Through analysis of their productions the children are slowly awakened to facts of form and relations of number, and led to the clear and precise use of language. As they grow older, the analysis becomes more definite and extended; and whereas the baby beginners only name the objects they produce, the more advanced children tell how they make each object, and the graduating class must be able to resolve whatever they create into its elements, and state the facts of form, number, direction, and relation which it illustrates. I consider this final stage very important, for the reason that it makes clear to the mind the meaning of all its experiences, and leads from the particular fact to the principle governing all the facts of the given class.

With children who have completed the pure kindergarten course the gifts may be profitably used to teach the rudiments of geometry and arithmetic. The geometric forms are first recognized, then sought under their veiled manifestations in nature, then applied in construction, then consciously produced, clearly analyzed, and sharply defined, and finally shown in their relations to each other. Thus the child who begins by simply calling his building blocks "cubes" will end by recognizing in his cube the solid, the polyhedron, the hexahedron, the prism, and the parallelopiped, and will comprehend its precise definition as a rectangular parallelopiped whose faces are equal squares. So, beginning by pointing out the square corners of his cube, he ends with the definite conception of a right angle, as produced when two straight lines meet each other so as to make the adjacent angles equal. All the simple problems of geometry may be illustrated to perception and grasped as matters of fact, and the mind thus be prepared for the geometrical reasoning of later years.

It is unnecessary to enlarge upon the evident adaptation of the gifts to the teaching of arithmetic. Infinitely varied exercises in counting and in the four fundamental rules may be given with sticks, while the divided solids offer striking illustrations of fractional parts. Halves, quarters, and eighths must grow clear through the right use of the third and fourth gifts, while the fifth and sixth lead on in their natural division to thirds, ninths, and twenty-sevenths, and may also be used to illustrate halves, quarters, sixths, and twelfths. The salient features of the method used are: (1) To excite interest in the relations of numbers, rather than to give mechanical drill; (2) to constantly associate number and form, making them mutually illustrative; (3) to apply numbers to mechanical and artistic production. Whereas, in the kindergarten proper, the child abstracted from his productions numerical facts, he now directly seeks in his constructions to solve numerical problems. To illustrate: With a given number of blocks the children are required to build a house of stated height, breadth, and thickness, with a fixed number of windows and doors of definite dimension, and, having built it, to calculate its square and cubic contents. With their tablets they make squares, oblongs, rhombs, etc., of different sizes, noting length, breadth, and con-

tents; or with their sticks develop symmetrical figures from different math
ical centers, calculating themselves the number of sticks required for eac
addition. Gradually they grow capable of abstract exercises, and, far fron
ing vexation in multiplication and madness in fractions, their lessons in arith
are to them a delight and an inspiration.

From this imperfect survey of the gifts let us turn now to the occupa
These are perforating, sewing, drawing, intertwining, weaving, folding, cu
peas work, cardboard and clay modeling.

The perforating tool is a sharp needle fastened into a wooden handle. H
this in a perfectly vertical position, the child pricks small round holes in
Little children are provided with drawings in bold lines, and by perforating
lines produce on the opposite side of the paper a raised outline of the draw
ure. As they grow more expert, they produce pictures in relief by delicatel
forating the surface between the lines. They also receive paper marked
squares, and, first pricking the corners of these squares, and then by carefu
forations connecting these corners, obtain vertical and horizontal lines of dif
lengths. These are next united to form figures, and as the eye gains accurac
the hand precision, advance is made to slanting and curved lines and their
binations.

Squared paper perforated only at the corners, and outline pictures perfo
at distances of about the eighth of an inch, give the basis of the sewing exe
Armed with worsted and an embroidery needle, the child connects the corn
the paper and works various combinations of lines, or carefully retraces th
lines of pictures. The salient feature in the new occupation is variety of
and through this simple work the harmonies and contrasts of color may be
cated and the attention directed to the colors of natural objects.

Sewing and pricking culminate in drawing, which again emphasizes both
binations of lines and representation of objects—hinting, on the one hand, tl
ments of design and on the other the first principles of artistic reprodu
Beginning by copying the outlines they have laid with sticks, the children ad
to reproduction of the figures resulting from combinations of tablets; and
these, first to front views, and finally to simple perspective representations
solids and their transformations. As the first step in drawing is to learn
correctly, it is evident that all the exercises, both in gifts and occupations
pare for the use of pencil and chalk. As the mediation of word and object
ing is of vast importance in its reaction on the mind, and as the soul of all
nical processes, it is the indispensable basis of industrial education.

The material for intertwining consists of strips of paper of different c
lengths, and widths, which, folded lengthwise and plaited according to de
rules, represent a great variety of geometric and artistic forms. The plaiti
rule must, however, lead up to free combinations.

In the occupation of mat plaiting the child weaves strips of paper into a l
paper cut into strips, but with a margin left at each end to keep the strips in
Designs are not imitated from patterns, but produced by numerical combina
In this mediation of number and form lies the special significance of the we
exercises, which, however, are also valuable for cultivating the sense of colo

The folding material consists of square, rectangular, and triangular pie
paper, with which a variety of figures are produced by slight modification
few definite ground forms. Through this occupation ideas of sequence and
nection are emphasized and the relation of mathematics to artistic produ
indicated.

In the occupation of cutting, a square or triangle of paper is folded and c
rule; and the pieces into which it is thus separated are combined in symm
forms and mounted on a sheet of paper or cardboard. The child is also en
aged to originate cuts.

By fastening sticks, sharpened at the ends, into peas soaked in water our
worker next produces the skeletons of real objects and of geometric forms.
occupation leads to close analysis of form, connects different solids with thei
responding planes, and prepares for perspective drawing.

While peas work throws into relief the outlines of objects, cardboard m
ing represents their surface boundaries, and clay work brings us back to the
itself. By modifications of and additions to the sphere, cube, and cylinc
variety of objects are represented; and these typical forms are more defi
recognized in the works of nature and of man.

Taken as a whole, the occupations apply the principles suggested by the
and give permanence to their vanishing transformations. It will be observe
particular occupations connect with particular gifts. Thus, pricking, se
and drawing, which are essentially one, connect with the sticks and rings;

twining and mat plaiting connect with the slats; folding and cutting with the tablets and peas work; cardboard and clay modeling with the undivided and divided solids of the first six gifts. It is also noticeable that while the gifts move from the solid to the surface, the line, and the point, the occupations, reversing this movement, develop from point to line, surface, and solid; and that while the determined material of the gifts limits to the combination and arrangement of unchangeable elements, the plastic material of the occupations is increasingly subservient to the modifying thought and touch of the embryo artist.

As has been repeatedly said, the aim of the kindergarten is to strengthen and develop productive activity. But we must be conscious of ideas before we can express them, and we must gain the mastery of material before we can use it as a means of expression. Hence the first use of the gifts is to waken, by their suggestiveness, the mind's sleeping thoughts, and the first use of the occupations to train the eye and the mind to be the ready servants of the will. While the child is still imitative in the occupations, he becomes inventive in the gifts; but as he grows to be more and more a law unto himself, he turns from the coercion of his blocks, tablets, and sticks to obedient paper and clay, and, ultimately outgrowing the simpler occupations, concentrates his interest in the exercises of drawing, coloring, and modeling. These artistic processes, with a technical training according to the very successful Russian plan, might, it seems to me, be profitably introduced into our regular school course.

The symbolism involved in all things—for in nature everything corresponds to spirit, and hence each lower material object is in some sense a key to unlock the perception of a higher, more subtle object—this symbolism is the basis of the intellectual value of the gifts of Froebel. No other educator since Plato's time has understood so well the connection of the child's first activities with his subsequent ones and the significance of what is rudimentary as a preparation for what is to follow.

The following extracts (from another unpublished lecture by Miss Blow) point out this symbolical education as Froebel has intended it:

THE SYMBOLIC PHASE OF EDUCATION.

The instinct of children is to share the life around them. Little girls are eager to help in the work of the house—to sweep, dust, cook, sew, or do anything that older people are doing. The boy will follow his father to the farm, to the forge, to the shop, and is proud and happy to be of the least use. How often do father and mother reject the weak but willing help of the little child! How often do they complain bitterly of the laziness, selfishness, and indifference of the older son or daughter!

As the child's interests and sympathies expand, he comes to notice the different activities of men. With the presentiment that he, too, is born to be a worker in the world, he eagerly watches the world's work; and not content with watching, he tries to imitate. The baby will try to follow the motions of those he sees working. The older child digs and plants, makes houses in the sand, floats his tiny boat on the water, and dams the stream to turn his toy mill. Froebel responds to the effort of the baby by a series of dramatic games representing the movements peculiar to different kinds of work, and to the need of the older child by the gifts and occupations of the kindergarten, through which he is enabled to imitate all kinds of technical and artistic processes.

The importance of industrial education is every day more widely admitted. That Froebel has found the true beginning of technical training is also quite generally recognized. It is one of the important features of the system that a definite training of the hand is begun in babyhood. There are games to strengthen and give freedom to the wrist; there are games to discipline the muscles of the arm; there are games to teach force and flexibility to the fingers. The hand is man's first and most important tool. It can not be too early taught to obey his thought and execute his will. We shall have no large class of skilled workmen until we learn from Froebel how to keep hands from growing clumsy and fingers from getting stiff.

The most fascinating feature of Froebel's games to a thoughtful person is, however, their reaction on thought. They are rooted, every one of them, in the relationship of feeling, action, and thought; they obey without exception that deep law which connects instinct, expression, and insight. How, through their contrasts, the activity of comparison is roused; how they quicken and intensify perception; what presentiments they create of the subtle relationships of sound and

movement: how they stir in the child the sense of proportion: how they sho
soul of harmony in the relations of numbers: how they foreshadow even the
terious correspondences of space and time! All these things and many
others can only be realized by those who, believing that in the night of u
sciousness slumber all the possibilities of the poet and the philosopher, will
patience to watch with Froebel for the dawning of the soul's light.

The opponents of the kindergarten have indulged in a great deal of se
mirth over what they have been pleased to call its false and pernicious symb
Can that be seriously called an educational system, they ask, which allows
to be called fishes and frogs, cats and squirrels; which sees in little mat
sticks trees and lamp-posts and soldiers; which makes the same block stand
house, a chair, and a sheep; and even uses the child's fingers to represe
grandmother, his parents, and his brothers and sisters?

Again, Froebel appeals from the scorn of his critics to the history of th
and the instinctive manifestations of the child. He hears untutored me
the brave man a lion, the meek man a lamb, the cunning man a fox. He
the savage describe his face, not as round, but as moon; and says of his frui
it is sugar cane, instead of saying that it is sweet. He finds among the r
ments of ancient art three cubes standing side by side, inscribed with the
of the Three Graces. He studies reverently Egypt's great unsolved proble
they are images in the Pyramids and the Sphinx. He reads the spirit's faint
tion of immortality in the mysterious phenix. Finding everywhere that ma
sought to express in symbols the truth he feels, but does not understand, he
his eyes upon the child, to seek in his instinctive life another parallel wit
development of mankind. At once he notices the tendency of childhood to
and delight in the most remote resemblances. "Father and mother stars,"
out a 2-year-old baby on seeing in the sky two large, bright stars in the
of a number of small ones. "Dust on the water," explains a boy of 4, as sta
on the seashore, he is blinded by the mist and spray. "Let me catch the
cries the little girl as she watches with delight the flickering reflection of th
light on the wall. Illustrations might be multiplied, but we do not need
We have all seen the boy ride his father's cane, and call it a horse: we
watched many a little girl caress the towel she has rolled and wrapped i
baby: we know how, to the imagination of the child, "the rose leans over t
baby's pillow," and "God sends the little star baby, 'cause the moon was so
in the sky."

The symbolic stage of thought is characterized by the perception of r
blances without abstraction of the qualities in which the resemblance lies.
the child calls the quivering reflection of the sunlight a bird, he shows us th
has been struck chiefly with the bird's swift motion, but at the same time h
learned to consider motion as an abstraction.

So too in the rich play, swimming, and climbing motions th
identifies the cat, the fish, and the squirrel with his ball. His sticks star
trees, lamp-posts, and soldiers through the quality of straightness; and his
fingers and hand suggest the merging of father, mother, and children i
unity of the family.

It is a fact full of deep meaning that the obscure thought or feeling reco
itself in a symbol, and can not recognize itself in a definite and exact refle
We need a mirror, not of what we are, but of what we already dimly see
selves to be. This is the reason that the child's life grows clearer to him th
the life of birds and animals than through the human life around him.
drawn closer to his mother by watching the cat with her kittens, or the m
bird with her young, than he is by seeing other children with their mothers.
no idle curiosity which bids him peer into the bird's nest and watch so int
while the mother bird feeds her young or covers them with her sheltering w
He is fascinated because thus his own life is made objective to him: his own
tion-lines are shown to him in symbol.

The child not only expresses himself symbolically, but is quick to interpr
symbolism of nature. And if, on the one hand, we recognize that he must
sent before he can understand, and know that the analogies which underl
action will in due course develop comparison and abstraction, can we dou
the other that the types of nature will reveal their history and the ma
symbol vanish in the spiritual reality? Looking into the past, we find that
phenomena of nature have been worshiped by men: that the human hear
bowed itself to sun and moon, to mountains and rivers, to beasts, and ev
the most disgusting reptiles. We remember the magicians and lightning of
the mystery of the burning bush, and the pillar of cloud and of fire. We
that to-day the oldest of Christian churches celebrates her mysteries in sym

forms and services; and the universal heart of Christendom concentrates its deepest feelings and intuitions in the symbol of the cross. From all these things may we not infer deep analogies between the outer and the inner world—between the truths God writes in human hearts and those He proclaims through the thousand voices of earth—and believe that by a process we can not trace the mind may move from the perception of the symbol to the conscious realization of the truth symbolized? Such, at least, was Froebel's firm conviction; and we find him, consequently, in many of his little plays directing attention to the natural symbols of great truths—leading the child to love the light, teaching him reverence for unseen forces, making him feel the unity that underlies variety, and stirring within him a prophetic certainty of complete self-recognition.

A single illustration must suffice to indicate this phase of Froebel's thought. To many, I fear, it will prove a stumbling-block; to many others, foolishness. To those only will it commend itself who, realizing that all things are connected, know that nothing is insignificant.

"It is my firm conviction," writes he, "that whatever gives the child pure and persistent pleasure is, however remotely, connected with some deep truth of his nature, and has in it a germ of highest possibilities.

"In the light of this faith, look at the shadow pictures on the wall!

"Between the bright light which shines on the smooth, white wall is thrust a dark object, and straightway appears the form which so delights the child. This is the outward fact. What is the truth which through this fact is dimly hinted to the prophetic mind? Is it not the creative and transforming power of light—that power which brings form and color out of dark chaos, and makes the beauty which gladdens our hearts? Is it not more than this—a foreshadowing, perhaps, of the spiritual fact that our darkest experiences may project themselves in forms that will delight and bless, if back of them, in our hearts, shines the light of God? Stern, bare rocks and forbidding clefts grow beautiful in the sunlight, and the fairest landscape loses life, beauty, and expression in the darkness. Is it not thus also with our lives? Yesterday they seemed to us full of beauty and hope; to-day we see nothing but struggle and pain. Yesterday we felt within us great possibilities; to-day we stagger under doubts and groan in the darkness of our souls. Only clear conviction that it is the darkness within us which makes the darkness without, and that all lives are beautiful when lived in the light of God's idea of them, can restore the lost peace of our souls. Be it, therefore, O mother, your sacred duty to make your child feel early the working both of the outer and the inner light! Let him see in one the symbol of the other, and tracing form and color to their source in the sun, may he learn to trace the beauty and the meaning of his life to their source in God!"

The analogy between light and truth has always been most deeply felt by the most spiritual minds. "The magi said of God that He had light for His body and truth for His soul." The psalmist exclaims, "Thou hast covered Thyself with light as with a garment." Christ tells us that God is Light, and in Him is no darkness at all; and St. John, writing of that state where we shall have done with all symbols, because completely penetrated with the realities they represent, declares that "the city hath no need of the sun, neither of the moon to lighten it."

If the connection is thus real, will it not make itself felt? May not the heart of the child thrill, as the heart of mankind has done, in response to the objective expression of its inward need? May not a childhood of spiritual presentiments best prepare for a manhood of spiritual insights?

As has been already repeatedly stated, Froebel's life and thought were ruled by the idea of organic unity. That all-pervading law of organisms by which they progress from the homogeneous to the heterogeneous, and realize the highest unity through the extreme of variety, was ever present to his mind, and his ideal consequently was the complete development of the individual man for the sake of all men. Therefore, he aimed through self-activity to develop powers, through love to consecrate them to service, through service to lift them into consciousness. To know himself man must feel and know all his relationships; and he learns the sweetness and solemnity of his life only by realizing its connections with nature, with man, and with God.

In view of this vital truth, Froebel insists that from the beginning of life the child shall be led to see and feel connections and dependencies. As these connections exist in the least things they can be shown in the least things, and the habit of mind thus formed will extend itself to greater things as the child's powers strengthen and his experiences enlarge. An instinct of this connection underlies the favorite game of all nurseries, "pat-a-cake," in which the mother shows the child that without the baker he could not have his cake. Froebel seizes this hint and develops it. For the cake the child depends on the baker, the baker on the

miller the miller in the farmer the farmer in the sunshine and the rain. In another game, called grass-mowing, the same general idea is carried out. The motion of the game represents the mowing of the grass; the words tell how the baby loves milk, how the milk comes from the cow, the cow must be fed with the grass the mower reaps, God sends the sunlight and the rain to make the grass grow. In still another play [illegible] the little games the child has learned. I give the words which accompany this game, only adding that the particular motion associated with each separate game is repeated when that game is referred to. Thus the child connects his isolated experiences into a whole, and begins to organize his knowledge.

[illegible]

"[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] wreath of varied hue.
[illegible]
[illegible]"

[illegible]

"[illegible] fingers are;
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] greetings
[illegible]
They talk as if they would never rest;
They tell of the basket, the eggs in the nest;
They tell of the doves and the pigeon-house,
How they fly in and out in gay carouse.
They tell of the little fishes gay
In the sparkling water floating away;
The cakes and little patty-cakes;
The target the good brother makes.
Now when they've reviewed their plays all through,
They ask each other what next they shall do.
The fingers say, 'To the steeple we'll go!'
But the little grandmothers they say, 'No!'
In the church door the grandmothers go."

We build up the future on the past; we look back that we may move forward; we grow strong for what is to be by seeing clearly what has been. Hence the great value of history; hence, too, the strength of those who, from time to time, pause in life to collect the results of living.

To most of us, however—perhaps to all of us—the first few years of life are a blank in memory. We wake to consciousness with definite feelings, thoughts, and tendencies. Whence sprang the feelings? How grew the thoughts? What fixed the tendencies? We ask in vain. Over the sources of life roll the silent waves of unconsciousness, and memory loses itself in a beginning when "all was without form and void, and darkness was upon the face of the deep."

The Limits of the Kindergarten as an Educational Appliance.

While the industrial preparation involved in the kindergarten exercises is sufficient justification for its introduction into our school system, it must be confessed that this is far from satisfactory to the enthusiastic disciples of Froebel. They see in the kindergarten the means for the moral regeneration of the human race, and they look upon the industrial phase of its results as merely incidental and of little consequence; and, indeed, they regard those who attempt to justify the kindergarten on an industrial basis as sordid materialists. That they have good reason to claim more than this preparation for manual arts is evident from the preceding extracts, in which Miss Blow has shown how the games, gifts, and occupations are symbolic, and thus propædeutic to subsequent intellectual and moral training. Every conscious intellectual phase of the mind has a previous phase in which it was unconscious and merely symbolic. Feeling, emotion, sensibility—these are names of activities of the soul which become thoughts and ideas by the simple addition of consciousness to them; i. e., the addition of reflection. What smoke is to the clear flame in some sort is instinct to clear rational purpose. Thoughts and ideas preexist, therefore, as feelings and impulses; when later they

are seen as ideas they are seen as having general form or as possessing universality. As feelings they are particular or special, having application only then and there; as thoughts they are seen as general principles regulative of all similar exigencies.

The nursery tale gives the elements of a thought, but in such special grotesque form that the child seizes only the incident. Subsequent reflection brings together the features thus detached and isolated, and the child begins to have a general idea. The previous symbol makes easy and natural the pathway to ideas and clear thought.

Besides the industrial training (through the "gifts and occupations") and the symbolic culture (derived chiefly from the "games"), there is much else in the kindergarten which is common to the instruction in the school subsequently and occupies the same ground. Some disciplines also are much more efficient in the kindergarten by reason of its peculiar apparatus than the same are or can be in the common school.

The instruction in manners and polite habits which goes on in all well-conducted kindergartens is of very great value. The child is taught to behave properly at the table, to be clean in his personal habits, to be neat in the arrangement of his apparatus, to practice the etiquette and amenities of polite life. These things are much better provided for in Froebel's system than elsewhere. Moreover, there is a cultivation of imagination and of the inventive power which possesses great significance for the future intellectual growth. The habits of regularity, punctuality, silence, obedience to established rules, self-control are taught to as great a degree as is desirable for pupils of that age, but not by any means so perfectly as in the ordinary well-conducted primary school. The two kinds of attention that are developed so well in a good school (1) the attention of each pupil to his own task, so absorbed in it that he is oblivious to the work of the class that is reciting, and (2) the attention of each pupil in the class that is reciting to the work of the pupil reciting, the former being the attention of industry and the latter the attention of critical observation, are not developed so well as in the primary school, nor is it to be expected. The freedom from constraint, which is essential in the kindergarten, or in any school for pupils of 5 years of age, allows much interference of each pupil with the work of others, and hence much distraction of attention. It is quite difficult to preserve an exact balance. The teacher of the kindergarten is liable to allow the brisk, strong-willed children to interfere with the others and occupy their attention too much.

As regards imagination and inventive power, it is easily stimulated to an abnormal degree. For if it is accompanied by conceit, there is a corresponding injury done to the child's faith and reverence which must accompany his growth if he would come to the stores of wisdom which his race has preserved for him. The wisest men are those who have availed themselves most of the wisdom of the race. Self-activity, it is true, is essential to the assimilation of the intellectual patrimony; but it is a reverent spirit only that can sustain one in the long labor of mastering and acquiring that patrimony.

The cultivation of language—of the power of expression—is much emphasized by the advocates of the kindergarten, and, I believe, with fair results.

There is a species of philosophy sometimes connected with the system which undoubtedly exercises a great influence over the minds of the followers of Froebel. It is, apparently, a system founded on a thought of Schelling—the famous "identity system"—which made the absolute to be the indifference or identity of spirit and nature. Its defect is that it deals with antitheses as resolvable only into "indifference" points; hence the highest principle must be an unconscious one, which makes its philosophy a pantheistic system when logically carried out. But Froebel does not seem to have carried it out strictly. He uses it chiefly to build on it as a foundation his propædeutics of reflection, or thinking activity. Antith-

esis, or the doctrine of opposites (mind and nature, light and darkness, sweet and sour, good and bad, etc.), belongs to the elementary stage of reflection. It is, however, a necessary stage of thought (although no ultimate one) and far above the activity of sense perception. But, compared with the thinking activity of the comprehending reason, it is still very crude. Moreover, from the fact that it is not guided by a principle above reflection, it is very uncertain. It is liable to fall from the stage of reflection which cognizes antithesis (essential relation) to that which cognizes mere difference (nonessential relation). Such imperfection I conceive to belong rather to some of the interpreters of Froebel's philosophic views than to Froebel's system as he understood it. It is certainly not a fault of his pedagogics. His philosophy is far deeper than that of Pestalozzi, while his pedagogical system is far more consistent, both in theory and in practice.

As regards the claimed transcendence of the system over all others in the way of moral development, I am inclined to grant some degree of superiority to it, but not for intrinsic reasons. It is because the child is then at an age when he is liable to great demoralization at home and is submitted to a gentle but firm discipline in the kindergarten that the new education proves of more than ordinary value as a moral discipline. The children of the poor, at the susceptible age of 5 years, get many lessons on the street that tend to corrupt them. The children of the rich, meeting no wholesome restraint, become self-willed and self-indulgent. The kindergarten may save both classes and make rational self-control take the place of unrestrained, depraved impulse.

But the kindergarten itself has dangers. The cultivation of self-activity may be excessive and lead to pertness and conceit. The pupil may get to be irreverent and overbearing—hardened against receiving instruction from others. In fact, with a teacher whose discernment is dimmed by too much sentimental theory, there is great danger that the weeds of selfishness will thrive faster among the children than the wholesome plants of self-knowledge and self-control. The apotheosis of childhood and infancy is a very dangerous idea to put in practice. It does well enough in Wordsworth's great ode, as a sequence of the doctrine of preexistence; and it is quite necessary that we should, as educators, never forget that the humblest child—nay, the most depraved child—has within him the possibility of the highest angelic being. But this angelic nature is only implicit, and not explicit, in the child or in the savage or in the uneducated. To use the language of Aristotle, the undeveloped human being is a "first entelechy," while the developed, cultured man is a "second entelechy." Both are, "by nature," rational beings; but only the educated, moral, and religious man is rational actually. "By nature" signifies "potentially" or "containing the possibility of."

There is no technical expression in the history of pedagogy with which more juggling has been done than with the word "nature." As used by most writers, it signifies the ideal or normal type of the growth of anything. The nature of the oak realizes itself in the acorn-bearing monarch of the forest. The nature of man is realized in the angelic, godlike being whose intellect, and will, and emotions are rational, moral, and pervaded by love. We hear the end of education spoken of as the harmonious development of human nature, physical, intellectual, moral, and affectional. This "nature," in the sense of ideal or normal type, is, however, liable to be confounded with "nature" in the opposite sense, viz, nature as the external world (of unconscious growth). This confusion is the worst that could happen, when we are dealing with the problem of human life; for man, by nature (as unconscious growth), is only the infant or savage, the mere animal, and his possible angelic "nature" is only possible. Moreover, this possibility never will become actuality except through his own self-activity; he must make himself rational, for nature as the external world will never do this for him. Indeed, where nature as the external (unconscious) world is most active in its processes—say, in the torrid zone—there the development of man will be most

retarded. Nature as external world is a world of dependence, each thing being conditioned by everything else, and hence under fate. The humblest clod on the earth pulsates with vibrations that have traveled hither from the farthest star. Each piece of matter is necessitated to be what it is by the totality of conditions. But the nature of man—human nature—must be freedom, and not fate. It must be self-determined, and not a mere "thing" which is made to be what it is by the constraining activity of the totality of conditions. Hence, those who confuse these two meanings of "nature" juggle with the term, and in one place mean the rational ideal of man—the self determining mind—and in another place they mean a thing, as the product of nature as external world. The result of this juggling is the old pedagogical contradiction found in Rousseau throughout, and now and then in the systems of all other pedagogical reformers—Pestalozzi in particular, and even in Locke before Rousseau.

To become rational, man must learn to practice self-control and to substitute moral purpose for mere impulse. Man inherits from nature, in time and space, impulses and desires; and, as subject to them, he is only a Prometheus Vinctus—a slave of appetite and passion, like all other animals. The infant begins his existence with a maximum of unconscious impulse and a minimum of conscious, rational, moral purpose. The disciple of Froebel who apotheosizes infancy and says, with Wordsworth:

> Heaven lies about us in our infancy,

and who thinks that the child is a—

> Mighty prophet! Seer blest,
> On whom those truths do rest
> Which we are toiling all our lives to find,

is prone to regard the kindergarten as a "child's paradise," wherein he should be allowed to develop unrestrainedly, and the principle, laissez faire—"let him alone"—is to fill the world with angels.

This belief in the perfection of nature is the archheresy of education. It is the more dangerous because it has a side of deepest truth—the truth which makes education possible, viz, the truth that man possesses the capacity for self-regeneration—the capacity of putting off his natural impulses and desires, his animal selfishness, and of putting on righteousness and holiness. His ideal nature must be made real by himself in order to be. His real nature, as a product of time and space, must be annulled and subordinated, and his ideal nature be made real in its place.

The child as individual, and without availing himself of the help of his fellows, is a mere slave, a thing, a being controlled by fate. Through participation with his fellow-men united into institutions—those infinite, rational organisms, the product of the intellect and will of the race conspiring through the ages of human history and inspired by the Divine purpose which rules all as Providence—through participation in institutions, man is enabled to attain freedom, to complement his defects as individual by the deeds of the race; he subdues nature in time and space and makes it his servant; he collects the shreds of experience from the individuals of the race and combines them into wisdom, and preserves and transmits the same from generation to generation; he invents the instrumentalities of intercommunication—the alphabet, the art of printing, the telegraph and railroad, the scientific society, the publishing house, the bookstore, the library, the school, and, greater than all, the newspaper. The poor, squalid individual, an insignificant atom in space and time, can, by the aid of these great institutions, lift himself up to culture, and to the infinitude of endless development. From being mere individual, he can become generic, i. e., realize in himself the rationality of the entire species of the human race. By education we mean to do exactly this thing; to give to the individual the means of this participation in the aggregate labors of all humanity.

Hence we are bound to consider education practically, as a process of initiating the particular individual into the life of his race as intellect and will power. We must give to a child the means to help himself and the habit and custom of helping himself; to participate in the labors of his fellow-men, and to become a contributor to the store created by mankind. Institutions: the family; civil society, with its arts and trades and professions and establishments, schools, etc.; the state, with its more comprehensive organizations, and, finally, the church. These are greater than the individual, and they are products of his ideal nature, and exist solely as means whereby the individual may develop his ideal.

The kindergarten, then, has the same general object that the school has had all along—to eliminate the merely animal from the child, and to develop in its place the rational and spiritual life.

Now, as regards the science of the kindergarten, there is one more consideration which is too important to pass by—the theory of play as an educational element.

The school had been too much impressed with the main fact of its mission, viz., to eliminate the animal nature and to superinduce the spiritual nature, to notice the educative function of play. Froebel was the first to fully appreciate this and to devise a proper series of disciplines for the youngest children. The old régime of the school did not pay respect enough to the principle of self-activity. It sacrificed spontaneity in an utterly unnecessary manner, instead of developing it into rational self-determination. Hence it produced human machines, governed by prescription and conventionality, and but few enlightened spontaneous personalities who possessed insight as well as law-abiding habit. Such human machines, governed by prescription, would develop into lawbreakers or sinners the moment that the pressure of social laws was removed from them. They did not possess enough individuality of their own. They had not assimilated what they had been compelled to practice. They were not competent to readjust themselves to a change of surroundings.

Now, in play the child realizes for himself his spontaneity, but in its irrational form of arbitrariness and caprice. In its positive phase he produces whatever his fancy dictates; in its negative phase he destroys again what he has made, or whatever is his own. He realizes by these operations the depth of originality which his will power involves—the power to create and the power to destroy. This will power is the root of his personality—the source of his freedom. Deprive a child of his play, and you produce arrested development in his character. Nor can his play be rationalized by the kindergarten so as to dispense altogether with the utterly spontaneous, untamed play of the child, wherein he gives full scope to his fancy and caprice, without depriving his play of its essential character and changing it from play into work. Even in the kindergarten, just as in the school, there must be prescription. But the good kindergarten wisely and gently controls in such manner as to leave room for much of the pure spontaneity of play. It prescribes tasks, but preserves the form of play as much as is possible. If the child were held to a rigid accountability in the kindergarten for the performance of his task, it would then cease to be play and become labor. Labor performs the prescribed task. Play prescribes for itself. The attempt to preserve the form of self-prescription for the child in his tasks is what saves the kindergarten from being a positive injury to the child at this tender and immature age. It is the preservation of the form of play, and at the same time the induction of the substance of prescription, that constitutes what is new and valuable in Froebel's method of instruction. There is a gentle insinuation of habits of attention, of self-control, of action in concert, of considerateness toward others, of desire to participate in the common result of the school, that succeeds in accomplishing this necessary change of heart in the child—from selfishness to self-renunciation—without sacrificing his spontaneity so much as is done in the old-fashioned primary school. And he gets large measures of the benefits of the school that he would

have lost had he remained at home in the family. The child, too, at this period of life has begun to experience a hunger for the more substantial things of social life, and the family alone can not satisfy his longings. The discovery of Froebel gives the child what is needed of the substantial effects of the school without the danger of roughly crushing out his individuality at the same time.

THE PRACTICAL CONDITIONS NECESSARY FOR THE SUCCESS OF THE KINDERGARTEN.

After we have decided in the affirmative the essential questions relative to the reasonableness of the course of study and discipline of the kindergarten, its suitability to the age of the children, its effect upon the education that follows it, we come to the subsidiary questions regarding expense, training of teachers, and the details of management. These questions are not important, unless the decision is reached that the kindergarten theory is substantially correct. If it is found to be a valuable adjunct to the school, then we must solve the practical problems of how to introduce it into the public-school system. The problem is, how to meet the expense. If the traditional form of the kindergarten be adopted, that of one teacher to each dozen pupils, and this constituting an isolated kindergarten, the annual cost of tuition would be from $50 to $100 per pupil, a sum too extravagant to be paid by any public-school system. The average tuition per pupil in public-school systems of the United States ranges from $12 to $20 for the year's schooling of two hundred days. No school board would be justified in expending five times as much per pupil for tuition in a kindergarten as it expended for the tuition of a pupil in the primary or grammar school.

If it is necessary to limit the number of pupils per teacher to 12 or 20, while in the primary school each teacher can manage and properly instruct 50 or 70, it becomes likewise necessary to invent a system of cheaper teachers. At once the Lancasterian system, or the "monitorial" system, suggests itself as a model for the organization of the cheap kindergarten. The kindergarten shall be a large one, located in a room of ample size to hold 5 to 10 tables, each table to have 15 children attending it, and presided over by a novitiate teacher; and the whole room shall be placed under the charge of a thoroughly competent teacher of experience and skill and well versed in the theory and practice of Froebel's system. The director of the kindergarten must be a well-paid teacher, receiving as much as the principal of a primary school, with 2 assistants. Her assistants, the "novitiate teachers," are learners of the system. The first year they shall be volunteers, and receive no salary; the second year, or as soon as they pass the first examination in theory and practice of the kindergarten, they are to receive a small salary as "paid assistants." After a year's service as paid assistants they may pass a second examination, and, if found competent, be appointed directors, and receive a higher salary.

In the St. Louis kindergartens the number of 60 pupils entitles the director to 1 paid assistant, and there is 1 additional appointed for each 30 pupils above that number. Thus there would be a director and 4 paid assistants if the kindergarten had 150 pupils. (The director would, in St. Louis, receive $350 per annum, and each paid assistant $125 per annum. The cost of tuition, based on teachers' salaries, would be $850 per annum for the 150 pupils, being less than $6 per annum for each.)

Besides the salaried teachers of the kindergarten, it is expected that there will be an equal or greater number of volunteers. In order to make it worth while for volunteers to join the system, as well as to secure the development of the salaried teachers, it is necessary to have two persons of superior ability that can give instruction once a week on the theory and practice (the "gifts and occupations") of Froebel's system. A young woman will find so much culture of thought to be derived from the discussion of Froebel's insights and theories, and so much pecul-

iarly fitting experience from her daily class in the kindergarten—experience tha will prove invaluable to her as a wife and mother—that she will serve her appren ticeship in the kindergarten gladly, though it be no part of her intention to follo teaching as a vocation.

It is a part of the system, as an adjunct to the public schools, to educate youn women in these valuable matters relating to the early training of children. have thought that the benefit derived by the 200 young women of the St. Loui kindergartens from the lectures of Miss Blow to be of sufficient value to compen sate the city for the cost of the kindergartens. A nobler and more enlightene womanhood will result, and the family will prove a better nurture for the child

Here we come upon the most important practical difficulty in the way of th general introduction of the kindergarten. If the teachers are no better than th average mothers in our families, if they are not better than the average primar teacher, it is evident that the system of Froebel can not effect any great reform i society. "It is useless to expect social regeneration from persons who are no themselves regenerated."

In our St. Louis work we have been very fortunate in having a lady of grea practical sagacity, of profound and clear insight, and of untiring energy to organ ize our kindergartens and instruct our teachers. Her (Miss Susan E. Blow's) dis interested and gratuitous services have been the means of securing for us a syster that now furnishes its own directors, assistants, and supervisors.

There is another important point connected with the economy of the kindergar ten. The session should not last over three hours for the children of this age Hence each room permits two different sessions to be held in it per day, one in th morning and one in the afternoon, thus accommodating double the number o pupils. In some cases, where the teacher has attained experience and strengt sufficient, she teaches in both sessions, and receives a higher grade of salary fo the work. (In St. Louis, as already mentioned, directors receive $600 for tw sessions per day, and $350 for one session; paid assistants receive $125 for one ses sion and $200 per annum for two daily sessions.)

The furniture of the kindergarten is made up of small, movable chairs and smal tables, each one capable of accommodating two children—the surface of the tabl being marked off into divisions 1 inch square. It is better to use the small table than large ones that will accommodate a whole class, for the small ones may b moved easily and combined into large ones of any desirable size, and may b readily arranged into any shape or figure, and placed in any part of the room, b the children themselves. It is necessary to use the floor of the room during on exercise each day for the games, at which time all the children are collected "o the circle;" at this time it may be desirable to remove the tables to the sides o the room, and with small tables this can be easily accomplished. Again, in th absence of one of the teachers, it may become necessary to combine two classe into one, uniting two tables. The small tables are, therefore, an important iten in the economy of the kindergarten.

With these suggestions, I leave the subject, believing that they are sufficient t justify the directors of our public schools in making the kindergarten a part o our school system. The advantage to the community in utilizing the age from to 6; in training the hand and eye; in developing habits of cleanliness, politeness self-control, urbanity, industry; in training the mind to understand numbers an geometric forms, to invent combinations of figures and shapes, and to represen them with the pencil—these and other valuable lessons in combination with thei fellow-pupils and obedience to the rule of their superiors—above all, the usefu suggestions as to methods of instruction which will come from the kindergarte and penetrate the methods of the other schools—will, I think, ultimately prevai in securing to us the establishment of this beneficent institution in all the cit school systems of our country.

CHAPTER XX.

SOME RECENT CONTRIBUTIONS OF BIOLOGY, SOCIOLOGY, AND METALLURGY TO THE CURRICULUM OF COLLEGES ENDOWED BY THE FEDERAL GOVERNMENT FOR THE BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS.[1]

BIOLOGICAL: (*a*) The foundation of agricultural chemistry and the inspiration to found experiment stations, directly due to Theodore de Saussure in 1804—The value of one experiment—The food taken by the plant from the air—The contest about the source of nitrogen—The microbe or ferment—The communication addressed by Messrs. Schloesing and Müntz to the French Academy of Sciences describing their discovery of a nitrogenous ferment in the soil—Discovery of the microbe causing this "fermentation," by Hellriegel and Willfarth, and further proof by Schloesing, jr., and Laurient—The food the plant takes from the soil. (*b*) The formation of vegetable mold and geological formations now in process in the United States through the work of coral animals on the coast of Florida and of lumbermen on the mountain sides—The agricultural differences (as shown by experiment at the University of Halle) between a soil with and a soil without earthworms—The power of the actinic or photographic rays of the sunbeam upon organic acids and in general upon vegetation—Epitome of the Rothamsted experiments and results during the last half century. (*c*) The plant as a vital machine seemingly endowed with a crude reflex activity or "irritability"—The vegetable cell or cell with a cellulose sac—The dynamics of cell growth—The movement and "instincts" of the root, leaf, and flower—Inheritance.

SOCIOLOGICAL: (*a*) The ebb and flow of population not a new phenomena—Efforts of society to interfere with such exchange or regulate it—Ancient slavery—Mediæval serfdom—Modern education. (*b*) Instincts at the bottom of migrations and the production of a proletarate—Charts representing the age of the populations of great cities. (*c*) The birth rate and death rate of city and country compared—Effect of country life on fecundity—Effect of city life on infants and in increasing illegitimacy. (*d*) Cooperation a form of trades unionism combined with agricultural capitalistic production—Value of the effort if considered from the economic rather than the political side—Cooperation in California (irrigation works)—In France, Germany, and Switzerland—Present condition of peasant life in Russia.

METALLURGICAL: The iron age the golden age. (*a*) Scientific engineering—Mining engineering and quick returns—Subterranean metalliferous deposits as a public resource and conservative treatment. (*b*) Legislation in the United States on the ownership of mineral deposits—In England and France—The protection of the miner—Tariff laws of the United States (in tabular form) regarding minerals and crude forms of metals since 1789. (*c*) Improvements in mining—The rock drill—The air-driven coal cutter, pick form, circular-saw form, and chisel form—The old and new methods of conveying the ore to the surface—The blast furnace and its development: Egyptian, Catalan, open-topped, closed tops with hot blast, etc.—The Siemen's "gas producer"—The creation of "metallurgical metals." (*d*) The mining academies of Saxony, France, and England—The evident imitation of the English school by American schools—The course of such schools and the positions circumstances have forced them to take in the past—The curricula considered.

NOTE A.—Professor Lockyer's meteoric hypothesis as to the formation of suns and worlds.

NOTE B.—Professor Drummond's theory of the function of the "African white ant" in agriculture and the formation of the vegetable soil of the valley of the Nile.

NOTE C.—Professor Dewar's apparatus for consolidating common air, with some account of the same.

Several years before the formation of the Association of Agricultural Colleges and Experiment Stations a report was made to the committee on technical instruction of the National Council of Education by a president of a western agricultural

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[1] By Mr. Wellford Addis, specialist for obtaining and collecting information regarding colleges for the benefit of agriculture and the mechanic arts.

college. The title of the report is Agricultural Schools: Their Objects, Methods, and Equipments. In the course of his argument the reporter remarked that "agricultural colleges have for their aim the promotion of intelligence in farming" and if such examples of body, mind, and sympathies as shall give strength for the task of elevating agriculture while the everyday surroundings add to the natural curiosity about seeds, soils, moisture, heat, germination, and fertilization, variation in plant and animal, adaptation of parts and forms. Botany, chemistry, mineralogy, entomology, comparative anatomy, physiology, zoology, and geology make a series so full of constant allegiances to previous curiosity as to give new zest to the problems of farm life.

Upon the publication of the report one of the members of the Council inquired whether the agricultural schools had investigated certain questions in agricultural chemistry which he deemed to be of great practical importance and to which he had seen no satisfactory answer. One of these questions was: "Does the deprivation of light have an effect to cause air to deposit some of its nitrogen?" He also wanted an explanation of the reason why unmilled land produced a sparse vegetation, while the earth overturned and frequently stirred was far more fruitful. He thought (speaking in 1890) that there should be far more experimenting among farmers and in agricultural colleges, and he also thought that when youth were properly instructed in agricultural schools they would be able to show the fallacies of the ox-tax theory. In reply to the inquiry, the reporter, President Fairchild, remarked that his college had been conducting experiments for two years upon the source of nitrogen, and when the experiments were completed a report thereon would be made, as the problem is a very complex one from the many modifying circumstances.

This report to the national council in 1888 was upon education in agriculture, and in such a report it would have been out of place to have spoken of the other group of technical subjects which Congress had joined with agricultural, that is to say, the engineering professions, when that body founded the schools for the benefit of agriculture and the mechanic arts. But in treating of such double-purposed colleges it would be somewhat anomalous for this Bureau to speak of them as though they were wholly agricultural colleges. As poorly as the study of agriculture had flourished in the land-grant colleges up to 1890, it was in a better position than the study of mining and metallurgical engineering. "We Germans," said a professor of that nationality, "have a large export trade in chemists." Thus a country filled with natural resources and home and foreign capital to develop them had no institution that could compare in status with the Royal Mining Academy of a little German State no bigger than the half of Massachusetts.

PART I.—BIOLOGICAL CONCEPTIONS.

Agriculture is both a science and an art, and the knowledge of all the conditions of vegetable life forms its scientific basis. If, then, it be asked, What is the reason one kind of plant succeeds in a field where another fails? the question belongs to the science of agriculture; but if it be asked, What measures are to be taken to preserve the fertility of a field or to render it fertile? that is a question put by the art to the science.[1]

The confusing federation of isolated sciences which form the course in agriculture in American colleges interferes with the study of that science. It is impossible to deny that the study lacks unity. There is a department of practice or labor, of chemistry, of physics, of botany, and the other classificatory sciences in every agricultural school. This separation is, indeed, unavoidable, but the work of these departments appears to be unfocused.

[1] Liebig, Familiar Letters on Chemistry, 1843, p. 125 and 126 N. Y. ed.

In the following matter it will be confidently assumed that the advance in biological study has cleared the way for a conception of a course in the theory of agriculture that is more homogeneous than the mere parallelism of a number of abstract sciences, the application of which to agriculture is recognized, but not shown. In thus recalling and in collating certain facts in regard to the science of agriculture, it will be considered, for the sake of brevity and clearness, to be—

1. The theories about the chemical changes whereby manure is changed into food ("fertility").

2. The circumstances that produce fertility.

3. The self-activity of plants in availing themselves to the utmost of the possibilities of their surroundings in order to perfect the hereditary instincts produced by the natural or artificial impregnation of the flower whence comes the seed.

In pursuing the course thus marked out the conceptions by which chemists and botanists have represented to themselves and to the public the manner in which plants grow and how they feed will be spoken of, then the effect on the soil of a long continuous growing and feeding of agricultural plants, and finally the manner in which plants behave as individuals endowed with the energy of sustaining themselves and perpetuating their kind and how new kinds of plants are created. But before speaking of a century of inconclusive but epoch-making hypotheses about vegetable nutrition, a half a century of facts which are true of Rothamsted at least, and a quarter of a century of the study of natural selection and the variation of plants under domestication, we must speak of two experimenters to whose sagacity the idea of an agricultural chemistry built on facts, the inspiration to found a Rothamsted, and the idea of a natural selection are due.

In 1804 M. Theodore de Saussure published the first and most important body of original and indisputable facts concerning agricultural chemistry ever issued. It bore the title "Recherches chimiques sur la végétation," and as it is not a work of the imagination, it may be described for those who like a lively diction and the brilliant effects found in Mr. Jules Verne's Trip to the Moon as a very dull book indeed. M. de Saussure did not wish to amuse. He desired to avoid all questions to which experiment could give no answer, for "in natural history facts alone lead to the truth," and though he candidly acknowledges that the road he has chosen is dry and tiresome, he justifies his course on the ground that it alone will lead to the development of agriculture.[1]

About 1860 Mr. Darwin began publishing his investigations in vegetable forces, and in doing so apologizes for his intrusion into the field of botany. "The hybridization and movement of plants, he says, ought to have been treated by a professed botanist";[2] but it was necessary that the author of the Descent of Man should seek instances in the vegetable kingdom to verify his hypothesis—the so-called Darwinian hypothesis—of natural selection.[3] These investigations of Mr. Darwin are epoch making, but seem not yet to be classed as a part of agricultural science. The future may show that to ascertain the difference between the vigor of a weed and of a "useful plant" is a very important thing for agricultural science to do.

THE CONVERSION OF GASES AND EARTHS INTO FOOD.

Before the dawn of the century now drawing to a close, Bonnet,[4] of Geneva, had discovered that the leaves of plants give off a gas; Priestley, an Englishman, the discoverer of oxygen, that the gas is oxygen;[5] Ingenhouse, an Anglicized Hol-

[1] Rech. chimiques, Preface, pp. III, VII—VIII.

[2] Different Forms of Flowers on Plants of the same Species, p. 1.

[3] Movement of Plants, p. 1.

[4] Sur l'usage des feuilles dans les plantes, 1759, or Boussingault Rural Economy, p. 31.

[5] Observations (1772) on air (infected with animal respiration and putrefaction) quoted in full in Brande's Manual of Chemistry, 1830, p. CI, vol. 1.

college. The title of the report is Agricultural Schools: Their Objects, Methods, and Equipments. In the course of his argument the reporter remarked that "agricultural colleges have for their aim the promotion of intelligence in farming" and of "such discipline of body, mind, and sympathies as shall give strength for the task of elevating agriculture while the everyday surroundings add to the natural curiosity about seeds, soils, moisture, heat, germination, and fertilization, variation in plant and animal, adaptation of parts and forces. Botany, chemistry, mineralogy, entomology, comparative anatomy, physiology, zoology, and geology make a series so full of constant adaptations to previous curiosity as to give new zest to the problems of farm life."

Upon the conclusion of the report one of the members of the Council inquired whether the agricultural schools had investigated certain questions in agricultural chemistry which he deemed to be of great practical importance and to which he had seen no satisfactory answers. One of these questions was, "Does the deprivation of light have an effect to cause air to deposit some of its nitrogen?" He also wanted an explanation of the reason why untilled land produced a sparse vegetation, while the earth overturned and frequently stirred was far more fruitful. He thought (speaking in 1888) that there should be far more experimenting among farmers and in agricultural colleges, and he also thought that when youth were properly instructed in agricultural schools they would be able to show the fallacies of the one-tax theory. In reply to the inquiry, the reporter, President Fairchild, remarked that his college had been conducting experiments for two years upon the source of nitrogen, and when the experiments were completed a report thereon would be made, as the problem is a very complex one from the many modifying circumstances.

This report to the national council in 1888 was upon education in agriculture, and in such a report it would have been out of place to have spoken of the other group of technical subjects which Congress had joined with agricultural, that is to say, the engineering professions, when that body founded the schools for the benefit of agriculture and the mechanic arts. But in treating of such double-purposed colleges it would be somewhat anomalous for this Bureau to speak of them as though they were wholly agricultural colleges. As poorly as the study of agriculture had flourished in the land-grant colleges up to 1890, it was in a better position than the study of mining and metallurgical engineering. "We Germans," said a professor of that nationality, "have a large export trade in chemists." Thus a country filled with natural resources and home and foreign capital to develop them had no institution that could compare in status with the Royal Mining Academy of a little German State no bigger than the half of Massachusetts.

PART I.—BIOLOGICAL CONCEPTIONS.

Agriculture is both a science and an art, and the knowledge of all the conditions of vegetable life forms its scientific basis. If, then, it be asked, What is the reason one kind of plant succeeds in a field where another fails? the question belongs to the science of agriculture; but if it be asked, What measures are to be taken to preserve the fertility of a field or to render it fertile? that is a question put by the art to the science.[1]

The confusing federation of isolated sciences which form the course in agriculture in American colleges interferes with the study of that science. It is impossible to deny that the study lacks unity. There is a department of practice or labor, of chemistry, of physics, of botany, and the other classificatory sciences in every agricultural school. This separation is, indeed, unavoidable, but the work of these departments appears to be unfocused.

[1] Liebig, Familiar Letters on Chemistry, 1843, p. 125 and 126 N. Y. ed.

In the following matter it will be confidently assumed that the advance in biological study has cleared the way for a conception of a course in the theory of agriculture that is more homogeneous than the mere parallelism of a number of abstract sciences, the application of which to agriculture is recognized, but not shown. In thus recalling and in collating certain facts in regard to the science of agriculture, it will be considered, for the sake of brevity and clearness, to be—

1. The theories about the chemical changes whereby manure is changed into food ("fertility").

2. The circumstances that produce fertility.

3. The self-activity of plants in availing themselves to the utmost of the possibilities of their surroundings in order to perfect the hereditary instincts produced by the natural or artificial impregnation of the flower whence comes the seed.

In pursuing the course thus marked out the conceptions by which chemists and botanists have represented to themselves and to the public the manner in which plants grow and how they feed will be spoken of, then the effect on the soil of a long continuous growing and feeding of agricultural plants, and finally the manner in which plants behave as individuals endowed with the energy of sustaining themselves and perpetuating their kind and how new kinds of plants are created. But before speaking of a century of inconclusive but epoch-making hypotheses about vegetable nutrition, a half a century of facts which are true of Rothamsted at least, and a quarter of a century of the study of natural selection and the variation of plants under domestication, we must speak of two experimenters to whose sagacity the idea of an agricultural chemistry built on facts, the inspiration to found a Rothamsted, and the idea of a natural selection are due.

In 1804 M. Theodore de Saussure published the first and most important body of original and indisputable facts concerning agricultural chemistry ever issued. It bore the title "Recherches chimiques sur la végétation," and as it is not a work of the imagination, it may be described for those who like a lively diction and the brilliant effects found in Mr. Jules Verne's Trip to the Moon as a very dull book indeed. M. de Saussure did not wish to amuse. He desired to avoid all questions to which experiment could give no answer, for "in natural history facts alone lead to the truth," and though he candidly acknowledges that the road he has chosen is dry and tiresome, he justifies his course on the ground that it alone will lead to the development of agriculture.[1]

About 1860 Mr. Darwin began publishing his investigations in vegetable forces, and in doing so apologizes for his intrusion into the field of botany. "The hybridization and movement of plants, he says, ought to have been treated by a professed botanist";[2] but it was necessary that the author of the Descent of Man should seek instances in the vegetable kingdom to verify his hypothesis—the so-called Darwinian hypothesis—of natural selection.[3] These investigations of Mr. Darwin are epoch making, but seem not yet to be classed as a part of agricultural science. The future may show that to ascertain the difference between the vigor of a weed and of a "useful plant" is a very important thing for agricultural science to do.

THE CONVERSION OF GASES AND EARTHS INTO FOOD.

Before the dawn of the century now drawing to a close, Bonnet,[4] of Geneva, had discovered that the leaves of plants give off a gas; Priestley, an Englishman, the discoverer of oxygen, that the gas is oxygen;[5] Ingenhouse, an Anglicized Hol-

[1] Rech. chimiques, Preface, pp. III, VII—VIII.

[2] Different Forms of Flowers on Plants of the same Species. p. 1.

[3] Movement of Plants, p. 1.

[4] Sur l'usage des feuilles dans les plantes, 1759, or Boussingault Rural Economy, p. 31.

[5] Observations (1772) on air (infected with animal respiration and putrefaction) quoted in full in Brande's Manual of Chemistry, 1830, p. CI, vol. 1.

lander, that light causes the gas to flow out,[1] and Senebier,[2] again a Genevese, that the gas discarded is a waste product which the leaf, so to speak, pulls out from the chemical compound which enters it as carbonic-acid gas. Thus the basis for a chemistry of agriculture was laid, and upon this foundation Saussure, another citizen of Geneva, began to build the science of agriculture.[3]

Mr. de Saussure's problem was this: Is Bonnet right in claiming that plants are fed entirely by air and water? Do they really make the chemicals contained in their structure or are they fed entirely by matter in the shape of gas?[4] He sought the answer in the ashes of plants, and he was "astonished to find that three-fourths of the ashes of green herbaceous plants are alkaline salts."[5] My life, he says in substance, was not long enough to investigate this matter thoroughly by studying the ashes of different plants and different parts of the same plant at different periods of a plant's existence. But even this regret bore fruit, for it inspired Sir John Lawes to undertake the work of long breath now so famous as the "Rothamsted Experiments,"[6] while the experiments he did make have given rise to the theories or quasi theories of Boussingault, who stood out for the overwhelming value of the nitrogenous (ammoniacal) matters of manure; of Liebig, who stood out for the value of the mineral matter it should contain, the air furnishing ammonia,[7] and of Pasteur, who stood out for microbous ferments, which, in their action, perhaps robbed the air of its nitrogen and turned it over to the plant chemically as Liebig[8] contended; perhaps broke up the insoluble compounds of nitrogen which Liebig showed were in the soil as the leaf takes out carbon from the carbonic acid of the air; perhaps merely converted the farmyard manure into "ammonia salts," as Boussingault, without dreaming of a microbe, thought[9] in one way and Saussure in another.[10]

In view of these statements it may be suggested that the starting point in the science of agriculture is the work of M. de Saussure, entitled Recherches chimiques sur la végétation, and that their author is the father of agricultural science.[11] It

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[1] Experiments on vegetables, discovering their great power of purifying the common air in sunshine, but injuring it in the shade of night (1779).

[2] Recherches sur l'influence de la lumière solaire pour metamorphoser l'air vicié en air pure par la végétation (1784).

[3] The investigations with which I have busied myself in this work (Recherches chimique sur la végétation) have for their object the influence of water, air, and humus upon the vegetation (p i). My end was to learn (by examining the ashes of burned plants) the law of their structure, not only by examining the ashes of different plants, but of the different parts of the same plant and at different periods of its growth. My life was too short to thoroughly carry out such a work and I deemed it sufficient to follow general investigations (p. 312).

[4] Recherches chimique, pp. 175, 241, 242.

[5] Recherches chimiques, pp. 234, 285. Paris, 1804, or German translation by Dr. A. Wieler, Zweite hälfte, p. 68, Leipsig, 1890.

[6] Memoranda of the origin, plan, and organization, etc., at Rothamsted, p. 3, London, 1896, fifty-third year of the experiments.

[7] Familiar Letters on Chemistry (1843, Am. ed.), pp. 163, 164, 169.

[8] Organic Chemistry, p. 90, second American edition; edited by Professor Webster, of Harvard (1841).

[9] Rural Economy, pp. 453, 454, second English edition (1845).

[10] Recherches chimiques, pp. 207, 205. Boussingault thought that Saussure magnified the amount of nutriment furnished by the air.

[11] Professor Dehérain claims this distinction for his friend, Boussingault (L'œuvre agricole de M. Boussingault, in Revue Scientifique, July 9, 1887). Likewise Professor Pettinkoffer, of the University of Munich, claims the same distinction for his friend and colleague, Baron Liebig. It seems natural, to say the least, to place Saussure as the founder of agricultural chemistry and of the proper method of investigation, while to the genius of Liebig may be given the honor of throwing the facts into a pedagogic form. Such ideas can in no way interfere with the vast merit of M. Boussingault in his researches on nitrogen as announced by the great chemist himself in telling M. Dehérain that when he began "no one knew how much azote (nitrogen) is in hay." Saussure's problem was to find how much air stuff there is in hay, and Liebig's to tell how it got there.

was he who first used the direct method in the chemical observation of plant growth, though Boussingault claims for himself the honor of applying with profit the indirect method of procedure which is called by the ambiguous name of elementary analysis (analyse élémentaire).[1]

As there will be frequent mention here of experimentation, let us ask, What is an experiment? "When I consider," says Sir Humphry Davy, "the variety of theories which may be formed on the slender foundation of one or two facts, I am convinced that it is the business of the true philosopher to avoid them [theories] altogether; it is more laborious to accumulate facts than to reason concerning them, but one good experiment is of more value than the ingenuity of a brain like Newton's." Despite this slashing argument it is to be observed that it may require a brain like Newton's to tell what an experiment is worth after it has been made, and it may not be too delicate a point to raise to ask whether it is ignorance or a theory which starts an experiment; and if it be ignorance, how can the experiment be intelligent, and if it be theory, how can the experiment—whether positive or negative, and however well done—be intellectually better than its source? In the course of this paper an attempt will be made to answer this question. At present the value of a single experiment may be ascertained from the following relation:

About the close of the last century one Lampadius made the following test: He constructed of boards five adjacent compartments or boxes, each box being 2 feet square and 1 foot deep. In one of these he put clay, into another sand, into another magnesia soil, into another lime soil, and into the remaining one garden soil, having, it should be added, previously mixed 8 pounds of cow manure with the material placed in each box. Upon these five soils he sowed rye, and in due course of time and of the necessary incinerations of the harvest he found that the ashes yielded by the plant products of each box of soil were made up of the same kind of substance. He forthwith concluded that these substances had been formed without any reference to the nature of the soil, but he forgot to note the possible effect that 8 pounds of the same substance he had mixed with the earth contained in each box might have upon his conclusion. It must be remembered that it was only a few years before that Lavosier had triumphantly disproved the idea of the savants of the eighteenth century that water makes soil.[2]

We can form three hypotheses about the source of plant food. It may be conjectured that it is manufactured by the plant itself, or that it is merely appropriated by the plant ready-made, either from the air by its leaves or from the earth through its roots. Of these let us begin with the atmosphere which is the sphere of the leaf. The following description will give some conception of this organ:

The apparatus of the leaf: Examined under the microscope with very high powers the leaf of a tea plant presents the following characteristics: The upper skin (fig. 5) is formed of polygonal cells, with their cell walls or cases slightly undulating. The skin on its outer surface, next the air, is comparatively thick and smooth. The lower skin (fig. 4) is formed of cells a little more irregular, and is furnished with mouthlike openings, which are called stomata (meaning in the Greek language a mouth—stoma), and hairs, better shown in the crosscut (fig. 2) of a melon leaf. These stomata present a very characteristic appearance, which is peculiar to the Camellia family. They are surrounded generally by three cells, which are smaller than the others and are flattened. The hairs consist of a single cell shaped like a cone; are generally curved, and have very thick walls. A hair cell is shown in fig. 4, where it is represented as flat upon the leaf; in fig. 2 it is represented standing up. Fig. 1 is the crosscut of the midrib of a tea leaf. Fig. 3 is a stoma of *Sedum lipurium*. (Illustrations compiled from Articles on

[1] Rural Economy, p. 43, English edition, preceding his account of his five early experiments (1838?) on the fixation of nitrogen. In 1860 he published a work, apparently not translated into English, entitled Agronomie, etc. As to the difference of the methods, see p. 936.

[2] Remsen, Inorganic Chemistry, 1892, p. 5. Thaer, in his Principles of Rational Agriculture, speaks of silica, alumina, lime, and magnesia as undoubtedly formed in organized bodies such as vegetables, page 135 of American edition of translation; cf. also Recherches chimiques, p. 242, where Saussure says that to think so is about as silly as to expect to get gold out of a substance in which there is none.

Materia Medica, 1789–1889, by Monsieur E. Collin, inspector-general French army; Botany, by Mr. Balfour, professor and regius keeper of the Botanic Gardens at Edinburgh, and Messrs. Gray and Goodale, professors in Harvard University.)

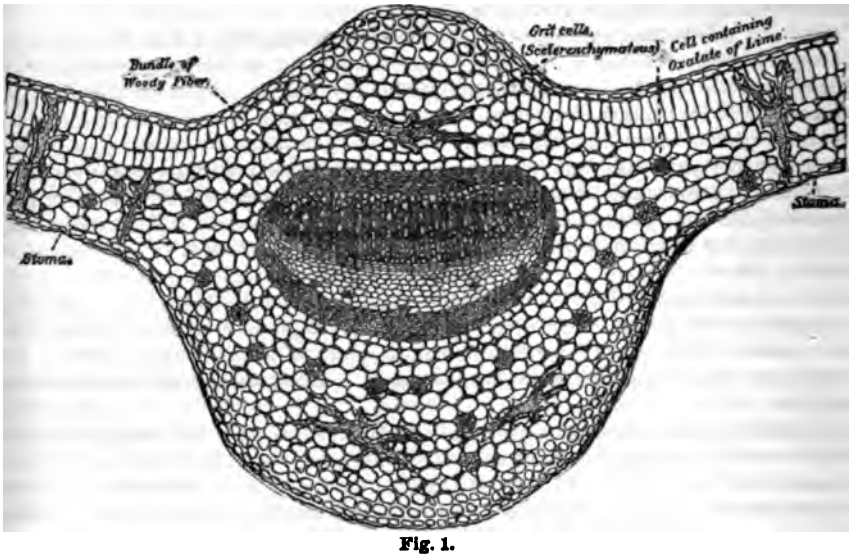


Fig. 1.

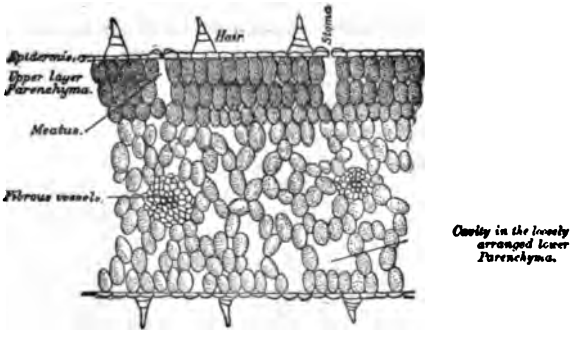


Fig. 2.

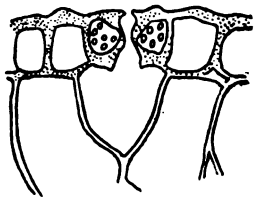


Fig. 3.

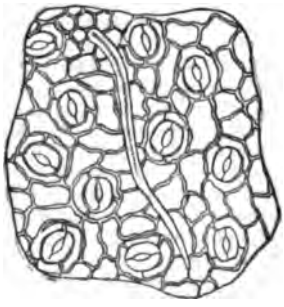


Fig. 4.

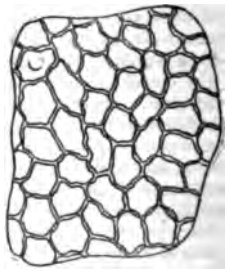


Fig. 5.

The leaf has three exterior exchanges with the atmosphere—one is to discharge water vapor into the air; another to disconnect the carbon of the carbonic acid that it takes from the atmosphere and to hold the carbon and let the oxygen of the

gas acid go, and the third is, in common with all parts of the plant, to respire—to breathe in oxygen and breathe out carbonic acid gas day and night during its entire life. In the light this "transpiration," "assimilation," and "respiration" all go on together. While leaves, stem, and roots are throwing off carbonic acid (as all living things must, and as the skin and lungs relieve the human frame of the waste products of the nervous system), the vital energy of the leaves is expending itself in breaking up in its leaves that very carbonic acid in order to carbonize the juices of the plant, just as the lungs inhale oxygen to burn up the products of that carbonization when they have been introduced into the stomach as food. Conservation of energy of this description excited the astonishment of the British Royal Society over one hundred years ago[1] and was beautifully pictured by Dumas and Boussingault[2] long before the discovery of the physical conception of that fact at Berlin and Manchester.

It would be absurd to contend that the water and carbonic acid breathed out by the plant nourishes that plant, and it seems to follow that the feeding (if such it is) done by the plant through its foliage is confined to the extraction of the carbon suspended in the atmosphere in the form of carbonic acid gas. The simplest experiment imaginable led to this discovery. Finding that confined air was not spoiled by the growth of a mint plant kept in it for some months, Dr. Priestley thought it possible that the process of vegetation might restore the air injured by the fumes from a burning candle. Accordingly on the 17th of August, 1771, he put a plant of mint into air in which a wax candle had burned until it had been entirely consumed, and on the 27th of the same month he found that the oxygen had been restored to the vitiated air, for another candle burned perfectly well in the receptacle in which the air used in the experiment was confined.[3]

But this kind of experiment does not tell all. There yet remains the quantitative proof of the fact. This Saussure gave. Let seven plants of vinca or periwinkle be kept for six days in 2,262 cubic inches of confined atmosphere, of which 7.5 per cent is carbonic acid gas, mixed up with 92.5 parts of common air; then on the seventh day it will be found that 169.6 cubic inches of carbonic acid gas have disappeared and 114.7 cubic inches of oxygen have taken its place.[4] Fifty years afterwards such an experiment in the hands of Boussingault would have resulted in giving a volume of oxygen practically equal to that of the dissipated carbonic acid.[5] It is quite safe, then, to say that the leaf eats (so to speak) of carbon, and that indirectly it takes this from the air, though it must never be forgotten that the capital function of the leaf is, to use an expression necessitated by our ignorance, "to elaborate" the sap.[6] Why the leaf should act thus through a green substance it contains called chlorophyll has engaged the attention of many, but there is something about the question that stunts the growth of an hypothesis.

If the carbon that is required by vegetation is obtained from the atmosphere, which contains only three parts of carbonic acid in every 10,000 parts of common air, it might be supposed that nitrogen, which forms 8,000 parts of every 10,000 of the air, would also be obtained in the same way. But nature in feeding vegetation prefers to decompose compounds, and during this century, at least, it has become more and more the ambition of agricultural chemists to discover the source of nitrogen obtained by the plant. Not that nitrogen is more important than free oxygen or water in vegetable nutrition, but because it was recognized that it

[1] On granting the Copley medal to Dr. Priestley, in 1773.

[2] Chemical and Physiological Balance of Organic Nature, 1838.

[3] Brande's Chemistry, third edition (1830), p. c.

[4] Recherches chimiques, p. 40.

[5] Cf. the numerous experiments given in the "Agronomie" of Boussingault (vol. 3), published in 1860.

[6] Starch is a product of the action of the leaf on carbonic acid.

is the very essential ingredient of fertility that man must supply. In the valle of the Nile nature unaided annually performs a great irrigating and fertilizin feat,[1] but in countries where human labor and foresight have to overcome natur deficiencies farm-yard manure or, in general, the waste products of life wer long thought to be alone capable of supplying the missing ingredient. Even no in China, the most fertile country, it is said, imaginable, after centuries of cult vation the people still continue to use this simple, antiquated method of preser ing the fertility of their soil. Europe is more advanced, and were text-books c agriculture and papers read before learned societies to be consulted as a guide i would appear that the farmer who asserts the preeminent value of farm-yar manure is worthy of the reply made by one of Molière's physicians to a patien who contended that the heart was on the left side of the human body, "Oh, w have changed all that now." Manure, said Liebig, is extremely useful to th plant when it has no leaves, since it furnishes to the roots the carbonic aci required in starting the new growth in spring, but as for its being the main sourc

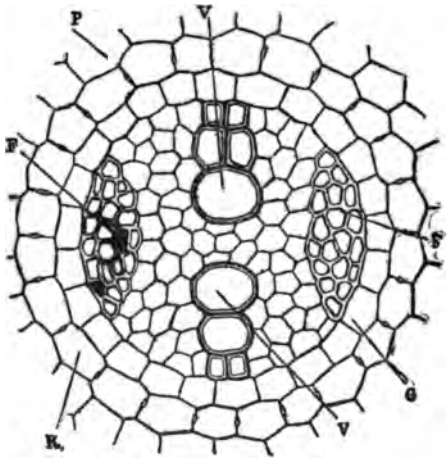


FIG. A.

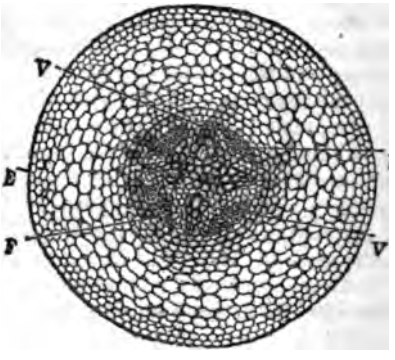


FIG. B.

Cross-section of roots.—A: Showing simple form of central portion, in which there are tw bundles of fibers (F) and two bundles of vessels (V). B: Root of bean, showing more compl cated structure, as there are four central bundles of fibers (F), and four of vessels (V.) (Afte Van Teighem.)

of nitrogen. that is not so, for the plant obtains that gas from the ammonia of th air which is washed into the soil by the rains.[2] To this M. Boussingault[3] imper sonally replied that the experience of all farmers is of far more value than th opinion of one scientist.

Theory and practice and the doctors thus disagreeing, it may be well to inquire "What is a root?" or rather "What is the function of a root?"

What the mixture of gases called the atmosphere is to the leaf, that and mor is water to the roots. We are not more surprised to learn that the air we breath can be solidified than to learn that by irrigation a desert may be made fertile. I is true that some forms of vegetation, such as mosses and mushrooms, have n roots, but the conditions of their growth recalls a charming fancy of Voigt wherein he claims that vegetable mold is not wholly dead matter, but is a vas

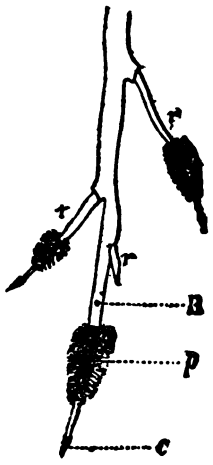
[1] See as to Professor Drummond's theory of the partial source of Nile mud, in Note B, at en of this chapter.

[2] Organic Chemistry, Liebig pp. 59, 47, 118, 69, 72-3, second American edition (Webster, editor)

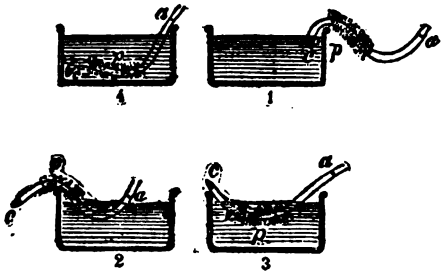
[3] The statement is made on the authority of Professor Deherain, his friend.

pervading, unorganized plant which bears and nourishes other plants as a tree affords nutrition to all its branches and shoots.[1]

The root is then an apparatus to absorb water. It is composed of three parts, a cap or penetrating point, a muff of fine hairs which follows close behind the cap, and finally an arm or the body proper of the root, which is at once an anchor, an alimentary canal, and a pump. For the direct purpose of plant nourishment the most important of these parts of the root is the muff of absorbing hairs. It is this structure that takes up nutriment suspended in the moisture of the soil, as is shown by the following illustrated statements:



Diagramatic illustration of root: *r*, root; *p*, muff; *c*, cap.



1. Both root cap and muff submerged in fertile liquid. 2. Root cap alone submerged. 3. Neither cap nor muff submerged. 4. Muff alone submerged. In 1 and 4 plant lives, but in 2 and 3 it dies. "It is well to cover surface of liquid with oil in making this experiment."

The following are Saussure's rules regarding absorption of solid substances by the roots:[2]

1. The roots of plants take up alkali salts and humus extract in a smaller proportion than they are held by the water in which they are dissolved.

2. The pruning of the roots, their decay, and, in general, the pining away of the plant favor the absorption of salts and humus extract.

3. A plant does not take in in equal proportion all the dissolved substances held by the water surrounding its roots. In general, it takes in least of those substances which are the most viscid.

4. If the weight of the extracts which the most fertile soil affords be compared with the weight of the dry plant which has grown upon it, it will be found that the plant has obtained only a small part of its weight from that soil.

Such is the root, the apparatus which is supposed to obtain the nitrogen required by the plant; but though the best established facts in agriculture had long before concurred in showing that nitrogen is fixed by growing plants, it was not until 1838 that an attack in the Saussurean manner was made upon the problem by Mr. Boussingault, a traveler, a chemist, and a farmer. "Had I chosen the old line of investigation," said this experimenter, "I would have failed; so I sought an answer by aid of an elemental analysis of the seed sown and the crop of seeds a similar seed produced from water and air."[3] The results thus obtained are fundamental, and are summarized by the investigator in this language:

1. Clover and peas grown in a soil absolutely without manure acquire a very

[1] Quoted approvingly by Thaer in his Practical Principles of Agriculture. American edition, p. 167 (1840).

[2] Recherches chimiques, p. 270-271.

[3] Rural Economy, p. 43.

appreciable quantity of nitrogen in addition to a large quantity of carbon, hydrogen, and oxygen.

2. Wheat and oats grown under precisely the same circumstances took carbon, hydrogen, and oxygen from the air and water around them, but no nitrogen.[1]

As it is known that plants absorb water—that is to say, oxygen and hydrogen—and it has been shown how they absorb carbon from the carbonic acid of the air, the question arises, where did the peas and clover of those experiments get the nitrogen that was beyond the power of the wheat and oats to procure? Do leguminous plants make their own nitrogen? Probably Mr. Boussingault would have considered the last question too trivial for an answer. At all events, he neither asked the question nor attempted to explain whence came the nitrogen produced in his remarkable tests. Upon that point, in 1838 at least, he "could only offer conjectures," and yet would not.[2]

Nevertheless, a genius of a more didactic than an experimental cast, and one having no doubts about anything in his specialty, did not hesitate to explain the phenomenon. "The first and most important question to be solved," said Professor Liebig, "is how and in what form does nature furnish nitrogen to vegetable albumen, and gluten to fruits and seeds. This question," he says, "is susceptible of a very simple solution." His solution was this: There is not the slightest reason for believing that the leaves or the roots of plants take in nitrogen directly from the atmosphere for the purpose of feeding the plant, but there are numerous facts showing that the roots of plants do take up a compound of nitrogen called ammonia given off into the air by the putrefaction of animal matter and thence washed down into the soil by the rains.[3]

It must be confessed that the hypothesis was built upon strong grounds of probability. From Saussure down it had been known that there is a trace of ammonia in the air,[4] and the ease with which water absorbs the gas (well known as the "ammonia" of the shops), the acknowledged power of the plant to break up both carbonic acid and water into carbon, oxygen, and hydrogen, and the excess of hydrogen which is found in the plant,[5] all seem to supply every evidence required by conjecture to enable it to resolutely affirm that ammonia gas from the atmosphere is the source of vegetable nitrogen. But while Liebig was declaiming on the theme that humus is merely "a slow and constant source of carbonic acid to the roots," and that to spread manure upon the fields, which already contain more nitrogen than the manure spread upon them contains, for the purpose of adding nitrogen to those fields, is folly,[6] Boussingault was asserting that "whatever may be the constitution and physical properties of land, it yields lucrative crops only in proportion as it contains an adequate quantity of organic matter, in a more or less advanced state of decomposition, called humus, or what is nearly the same thing—vegetable earth or mold.[7] Having thus apparently flatly contradicted Baron Liebig, he goes on to say that no working of the field, nor favoritism of climate, nor salts or alkalis will take the place of

[1] It is impossible here and perhaps unnecessary to follow up Boussingault's work in attempting to solve the nitrogen problem. In a positive way he never got further than his 1838 declaration.

[2] My mode of experimenting had in view merely to determine the assimilation of nitrogen by certain vegetables without entering into the question of the means by which this was effected. Upon that point I could only offer conjectures.

[3] Organic Chemistry, pp. 9, 10, 69, 72, second American edition, Cambridge, 1841. The key to Liebig's position is this: Humus is decayed vegetation, therefore vegetation must have preceded humus. But there is a difference between a lichen growing on an undisintegrated rock in "symbiosis" with a microbe and a wheat plant growing in soil or as it is called disintegrated rock.

[4] Recherches chimiques, p. 207, footnote.

[5] Nutrition of Plants, Deherain in Dictionnaire d'Agriculture.

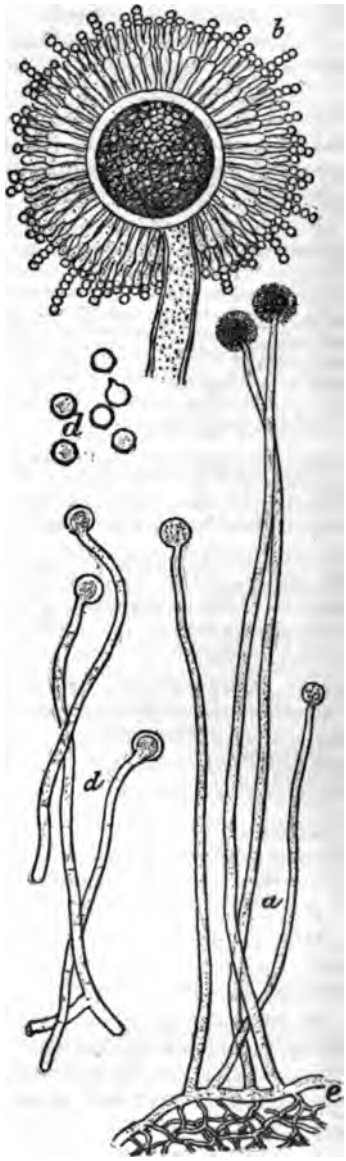
[6] Organic Chemistry, pp. 90, 59, 47, 118, and perhaps 112.

[7] Rural Economy, Chapter V, On manures, p. 309, second English edition.

manure, which conclusion so exercised Mr. Georges Ville that he was lead up to publishing a "School of Manures," in which the "student" is told by the "professor" that it is not necessary to manure a clover field with farmyard manure for the purpose of nitrogenating it, as clover gets all its nitrogen from the air, and the phosphate, potash, and lime it requires may be best put on as mineral matter, "for manure only acts by the nitrogen, phosphate, potash, and lime it contains."[1]

Perhaps the situation in 1850 had not changed very much from that of 1804, when Saussure wrote, "If nitrogen is a simple body, if it is not a part of water, it must be conceded that plants assimilate it only in the form of vegetable and animal extracts (humus), in ammonia vapor, or in other compounds dissolved in water, which they can take from soil or air; for it must be admitted that when a plant grows in a confined atmosphere by the help of a little distilled water, the new growth gains nitrogen at the expense of the parts that had been formed before the experiment commenced."[2] At all events, when Pasteur, in 1862, said that the entire study of nitrification would have to be all done over again, no one thought his criticism ill timed. But before exposing the developments made by the new line of investigation, it is desirable to show the structure and function of an organism which M. Pasteur found in a wine tub, Mr. Tyndall even in the pure air of the Alps, and M. Schloesing and others, more wonderful still, found in the ground—the ubiquitous microbe in all its bewildering uncertainty of an administering and a destroying angel.

For the present purpose microbes may be divided into two classes, one of which, in the air or in oxygen, will manifest its properties as a ferment, while the other will only work in a vacuum or in an atmosphere of carbonic acid or hydrogen gas. Both sets require oxygen, but the set that works in a vacuum, etc., has the ability to break up compounds containing oxygen in order to obtain that absolutely necessary element of life, hence it is called an anaerobe, while the microbes, that work in an oxygenated atmosphere like common air, are called aerobes. The dreadful scourge of hospital amputations, known as septicemia or blood poisoning, is caused by an anaerobe, which finds a breeding place in the carbonic-acid gas surrounding a small piece of dead flesh or a clot



Aspergillus niger. (*a*) General appearance, magnified 30 times. (*b*) Flower magnified 200 times. (*c*) Mycelium ramifying in nutritive fluid. (*d*) Spores magnified 500 times. (After Raulin.)

[1] The Chemical School of Manures, Philadelphia translation.
[2] Recherches chimiques, p. 207.

of blood, and the carbonic-acid gas and marsh gas produced at the bottom of a manure pile are due to the same cause. On this occasion an aerobe, the *Aspergillus niger*, is chosen for illustration for reasons that will suggest themselves as its performances are related.

This aspergillus (aspergillus, a brush, and niger, black) lifts its black tuft of spores above the mycelium or network which ramifies in the liquid that nourishes it. From this mycelium little cylindrical columns somewhat larger than the threads of the mycelium run up into the air, terminating in heads formed after the manner of a dandelion ball or tuft when the yellow flower has fallen, except that the many projecting bodies of the aspergillus are black instead of white and carry balls or "spores" at their extremities instead of gossamer stars.

Now, suppose one or more of these balls or spores should be sown in a liquid at blood heat, made up of ingredients such as these:[1]

	Grams.		Grams.
Water	1,500	Carbonate of magnesia	.40
Candied sugar	70	Sulphate of ammonia	.25
Tartaric acid	4	Sulphate of zinc	.07
Nitrate of ammonia	4	Sulphate of iron	.07
Phosphate of ammonia	.60	Silicate of potash	.07
Carbonate of potash	.60		

Then certain precautions of a technical nature necessary for the experimenter, but not for the reader, to know being taken, there will appear in eighteen or twenty-four hours a mycelium (c of the cut) at first white, but after the lapse of another day yellow and then brownish, and finally black because of the deposit of spores. Now, what is the influence of the potash, for instance, upon the growth of the aspergillus? The answer is found in this way: Take two receptacles, one containing the liquid given above and the other the liquid minus the potash. The whole liquid will produce 25 grams of dried plant or fungus; the liquid, without potash, will produce only 1 gram. The suppression of the potash has caused the product (dried) of the aspergillus to fall twenty-four times. Let us then say that its usefulness is measured by the number 25, and in the same way (growing two crops so as to exhaust the liquid and measuring both crops) it is found that the value of—

Ammonia is	153	Oxide of zinc is	10
Phosphoric acid is	182	Oxide of iron is	2.7
Magnesia is	91	Silica is	1.4
Potash is	25		

The numbers opposite ammonia, phosphoric acid, potash, and magnesia need not astonish us, says M. Du Claux, chief of the Pasteur Institute, they having long been known to be excellent manures.

Microbes acting thus are called ferments: that is, they break up a chemical compound in which they start to grow into elements which are left free to rearrange themselves, it may be assumed, in new combinations. In such a way wine is turned into vinegar and animal bodies into dust. After having been used to explain the diseases of men, beasts, silkworms, beer, milk, and cheese, the microbe is now offered as an explanation of fertility. The discovery of this function of the microbe is due to two French chemists, Messrs. Schloesing and Müntz, who have so candidly described the beautiful experiment which acquainted them with the fact that their joint "note" to the French Academy of Sciences (in 1877)[2] is given nearly in full.

[1] Following M. Jules Raulin—Recherches sur le développement d'une mucédinae dans un mille artificiel, 1870.

[2] Comptes Rendus. Tome 84, p. 301; Sur la nitrification par les ferments organisés.

Note to the French Academy of Sciences, by Messrs. Th. Schloesing and A. Müntz, concerning nitrification of the soil by organic ferments.[1]

It is generally admitted that the nitrates which are formed in the soil come from the burning (chemically) of ammonia and nitrogenous matter of organic origin, but there is no agreement upon the mechanism by which this burning is done. Is the nitrification a result of direct reaction, purely chemical, between oxygen gas and nitrogen compounds; is it brought about by the intermediation of organisms acting as ferments; or, indeed, is it produced by both of these actions working in concert? These questions have been asked since the day when M. Pasteur showed that certain organisms—such as the so-called "mycoderma" of wine and vinegar—have the property of introducing the oxygen of the air into organized substances of the most miscellaneous kinds, and also that they are the most active agents in the destruction of organized or, so to speak, biological matter which has lost its vitality. Now, M. Pasteur has also shown that organic substances (which are, at least, as alterable as those which may be supposed to nitrify in the soil) oppose a singular resistance to oxygen when they are protected from all contact with germs of a fermenting organism. In putting these two facts together we are led to suppose that living agents must intervene to effect combustion in the soil, at least in the case of rapid combustion and nitrification, without our being obliged for all that to refuse to free oxygen, working in virtue of chemical forces, the faculty of burning and of nitrifying nitrogenous matters. In short, we assume a living as well as an inert chemical agent in the destruction of dead organic matter.

Convinced of the truth of these conceptions, M. Pasteur since 1862 has constantly asserted that the study of nitrification must be made ever from the point of view of the function in nature of the microbe. The experiment we are about to report confirms the anticipations of M. Pasteur without just now rigorously maintaining their truth.

One of us [Müntz] while occupied recently with an investigation concerning the irrigation of land with sewage water desired to ascertain whether the presence of humic matter in a soil is indispensable to effect the purification of water of that kind. In short, is humus necessary to cause the total burning up of all impurities held in solution by sewage water? To this end, a large glass tube 40 inches long was filled with 11 pounds of quartz sand, which had been purified of all organic matter by being exposed to a red heat and then mixed with 100 metric grams of carbonate of lime in powder. The sand was watered every day with the same quantity of sewage water, put on in such a manner that the liquid took eight days to descend through the tube. During the first twenty days no appearance of nitrification was produced, and the proportion of the ammonia in the water filtered in this way remained invariable. On the twenty-first day the niter appeared and increased very rapidly, and then it was evident that the sewage water on leaving the apparatus contained no trace of ammonia.

Let us assume that in the fact above related the oxygen and nitrogenated matter had been burned chemically by the oxygen working directly on the organic matter held by the water, that is, burned it like nitric acid will burn a copper plate, or oxygen will rust (i. e., burn) a nail in a moist atmosphere. In that case the question might be asked why the burning had waited twenty days before it began. That delay is better accounted for upon the hypothesis that it was caused by a living ferment which is not able to work, evidently, unless, after their germs have been sowed, they have had time to develop.

The experiment commenced in June and had continued four months, when it occurred to us to introduce into the apparatus the vapor of chloroform. One of us [Müntz] had shown that this substance suspends all activity among living ferments without in any manner interfering (entraver) with soluble ferments. If, then, the nitrification observed in our apparatus after the twentieth day was produced by organic beings, chloroform ought to stop it by putting those organisms to sleep. If, on the contrary, the nitrification was a mere chemical reaction, the chloroform would have no effect in stopping nitrification, which would go on as before. Accordingly we placed upon our sand in the tube a little vase full of chloroform and diffused its vapor through the tube by a current of forced air. As we have said, it took eight days for the daily dose of sewage waters to run through the sand. Thus we were unable to note the immediate effect, but after ten days the liquid running through contained no trace of niter; on the contrary, the ammonia of the water was again found in its complete totality. The filtered

[1] Comptes Rendus, tome 84, p. 301.

or to take out afterwards all the oxygen which is produced by the breaking up of the carbonic acid by the chlorophyll, it is necessary to provide for furnishing the carbonic acid as it is wanted and then to withdraw the oxygen set free by the leaves as the experiment proceeds.

In a kind of elongated cylinder of glass we introduced sand, out of which all organic matter had been first burned and then saturated with a mineral solution free from nitrogen, in which the plant will grow. Every precaution is taken to keep germs from the air out of the apparatus. In the sand are sowed three seeds of dwarf pease (pois Gouthier), and these are watered with a little pure water in which there has been placed some fresh nitrogen nodes ground up in a mortar (broyé),[1] taken from pease and beans that have grown in the open air. The cylinder is then placed in a south window. The seeds sprout, and we continue our experiment for three months, August to October, two trials being made.

The pease did not grow very large, but they were healthy and, for their size, vigorous. They flowered, but did not fruit. The figures are these:

Direct method.[1]

	First experiment.	Second experiment.
Nitrogen gas introduced at beginning.....cu. centimeters..	2681.2	2483.3
Nitrogen gas found at close of experiment..cu. centimeters..	2652.1	2457.4
Difference or nitrogen fixed	29.1=36.5 mg.	25.9=32.5 mg.

[1] One seed failed. A centimeter is near 0.4 inch; a cubic centimeter is therefore about .061 cubic inch. The milligram is $\frac{15.6}{1000}$ grains.

It is impossible to attribute these differences to errors which were caused by the method pursued. Suppose that in each measurement the maximum error was committed, and counting all the errors in such a sense that they would produce the greatest possible error in the total, yet this would not exceed 3 cubic centimeters.

An examination of the plants at the end of the experiment brought out the fact that there were a large number of nodes upon their roots.

Applying the method of Hellriegel and Wilfarth we get by the—

Indirect method.

	First experiment.	Second experiment.	Peas grown without "nodes."
Nitrogen in the soil before the experiment, in milligrams.....	4.3	4.3	4.3
Nitrogen in the pea seeds, in milligrams	28.3 } 32.6	28.2 } 32.5	28.2 } 32.5
Nitrogen in the soil at the close of the experiment, in milligrams.....	15.1	17.5	8.3
Nitrogen in the plant, seeds and all, in milligrams.....	58.1 } 73.2	49.1 } 66.6	24.8 } 33.1
Gain of nitrogen, in milligrams	40.6	34.1	.6

To sum up: The indirect method shows that there was a gain of nitrogen during the course of growth, while the direct method shows that this gain is really due to the fixation of nitrogen gas, for when the apparatus had been all connected together a perfect vacuum was created in all its parts, and then this vacuum was filled with, first, pure oxygen, 20 to 25 parts; pure carbonic-acid gas, 6 to 9 parts, and pure nitrogen, 65 to 70 parts, the last being measured with the greatest possible exactitude by means of a volumeter.

When this "note" had been read to the academy, M. Berthelot observed: "This note seems to me to close the polemic relative to the fixation of free nitrogen by the concurrence of the soil and the plant. It shows, indeed, in confirmation of a

[1] The microbe of these nodes has been classed among the myxomyceles, bacterias, and filamented mushrooms. While some botanists refuse them "all autonomy," Laurent thinks they should be classed between the last two, and might be called Pasteuriaces. They must come from a germ or from land carrying microbes.

long series of my observations since 1883 and confirmed by Messrs. Deherain, Frank, and Tacke, together with the observations made by Hellriegel and Wilfarth, Brèal, and Prozmowski, that the soil and plants enrich themselves with nitrogen by the influence of microbes, microbes of which I discovered the presence in the soil and of which the German savants have discovered the parasitism and specific action upon the roots of the leguminosæ."

As beautiful and as important as was the experiment with chloroform by Professors Schloesing, sr., and Müntz, it is possible to think that it did not surpass in the latter particular still another experiment of Schloesing, jr., and Laurent in 1891. They made two tests. In the first they found that nonleguminous plants absorbed nitrogen just as in the year before by the same method they had proved that fact of the leguminous plants. This surprising result was not credited, however, for certain mosses (Brynum, Leptobrynum, rootless plants) and algæ (conferva, oscellaria, nitzschia, likewise rootless) and other like green plants of "low orders" were seen little by little to cover the soil. A second series of experimentation was undertaken in which the green plants of the lower orders were smothered out by a thin layer of calcined quartz sand. After that no plant except those of the leguminous order was found to fix nitrogen. From these tests they drew two conclusions: (1) There are green plants of a low order botanically, which take nitrogen from the air, and (2) nonleguminous plants do not fix nitrogen in a measurable quantity, while under the same conditions a legumin will.

But despite the present accentuation of nitrogen as a food of plants taken in through the roots, as nitric acid (?), it has not always held its present position. Saussure wrote in 1804: "I have found the phosphate of lime in the ashes of every plant I have examined, and there is no reason to suppose that plants can exist without it."[1] Liebig speaks more openly: "Ashes of plants represent the whole nourishment which vegetables receive from the soil. By furnishing them in sufficient quantities to our meadows we give to the plants growing in them the power of condensing and absorbing carbon and nitrogen by their surface. With a knowledge of the exact quantity of ashes the farmer will be able to keep an exact record of the produce of his fields in harvest, like the account book of a well-regulated manufactory, and then by a simple calculation he can determine precisely the substances he must supply to each field, and the quantity of these in order to restore their fertility." Well might Boussingault, a scientist, say that the experience of many farmers was worth more than the opinion of one scientist. He, indeed, acknowledges that artificial fertilizers, including, of course, nitrate of potash, are "mineral manures or stimulants," but remarks that, "Ashes, gypsum, or lime spread upon the soil would not improve it in any sensible degree;" and, having thus seemingly contradicted Liebig, goes on to partially acknowledge the justice of Liebig's pretension that nitrogen is unnecessary by saying that nitrogenous stuff alone (such as nitric acid) would be no better than the alkalis or phosphates or limes. What is necessary is a combination of the two, one the nitrogen coming definitely from the air (certainly Liebig's contention), the other from the "solid parts of the globe"[2] (which "other" Liebig wanted put on when not present in the parts of a portion of the globe to be manured). Comparing these statements with the experiments of Messrs. Schloesing, jr., and Laurent, it will be found that if the microbe be called manure both Liebig and Boussingault are right, at least as far as the leguminous plants are concerned, though both were quite ignorant of the facts in the case. What, then, do plants get out of the soil? And we are recalled to Saussure's work.

It was believed by many before Saussure that plants elaborated for themselves the ashes left when they were consumed by fire. It seemed so natural to think so

[1] It is found in the sap of the maple tree used for making maple sugar, for instance.
[2] Rural Economy, p. 311.

that no one took the trouble to show that it was so.[1] Some had found that the green parts of trees and plants give more ash than twigs and the twigs more than the limbs or trunk, others that annual plants transpire water more freely than a tree, but it remained for Saussure to make the analyses that were used for more than half a century.

Let us take two of Saussure's analyses of ashes:[2]

	Ripe wheat.		Ripe corn (Zea-mais).	
	Straw.	Seed.	Seed.	Straw.
Potash	12.5	15	14	59
Phosphate of potash	5	32	47.50	9.7
Chloride of potash	3	0.16	0.25	2.5
Sulphate of potash	2	Trace.	0.25	1.25
Phosphates ("earthy")	6.2	44.5	36	5
Carbonates ("earthy")	1	0	0	1
Silica	61.5	0.5	1	18
Oxide of iron	1	0.25	0.12	0.5
Lost	7.8	7.59	0.88	3.5
	100	100	100	100

It is very evident where the phosphates are needed in an agricultural seed plant. But in order to show how small a part all the ash constituents of a seed are of the unburned seed the following analysis is taken from Boussingault[3] to supplement those of Saussure given above:[4]

Contents.	Wheat seed.	
	Before germination.	After germination.
Carbon	45.5	41.1
Hydrogen	5.7	6
Nitrogen	3.4	*a* 8
Oxygen	43.1	39.5
Ashes	2.3	*b* 5.4
	100	100

a Supposed. *b* Calculated.

It has thus been shown that two gases of the atmosphere, carbonic acid and nitrogen, are used by nature in building up that part of the plant structure which, when wood is treated by fire in a certain way we call charcoal, but cellular structure when the plant is merely dried by a heat that evaporates the uncombined or chemically loose water which it holds mechanically in its framework. It is supposed, probably proved, that the carbonic acid broken up by the leaf is the source of its cellulose, and that its nitrogenous matter is elaborated by the same agency. No space has been devoted to proving that plants absorb water, nor has any notice been taken of the fact that water is thought to be decomposed into its elements, hydrogen and oxygen, by the plant. If such decomposition does occur it occurs within the plant, though the formation of the carbohydrates (cellulose,

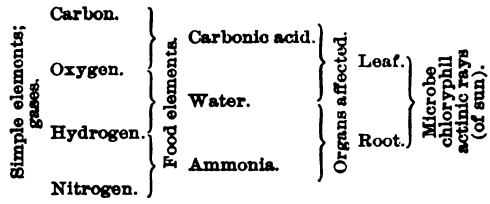
[1] Thaer (Principles of Agl., section 3, Agronomy, p. 135 of American edition, 1846) says that silica, alumina, lime, and magnesia "are formed in organized bodies."

[2] Recherches Chimiques, tables to chapter 9.

[3] Rural Economy, p. 26, English edition.

[4] Liebig classified cultivated plants into potash plants, lime plants, and silica plants, according to the presence of those substances in the ash of the straw. Potash plants are corn, the beet, turnip, etc.; lime plants are peas and clover; and silica plants are those from which the staff of life is obtained—wheat, rye, oats, and barley.

starch, etc.) may possibly be formed without the decomposition of water. Whatever authority deems true on this point will be given when treating of the self-activity of plants. But there can be no doubt that the ashes represent the contribution of the soil to the plant, and that the matter so furnished is, in the form of silica, decidedly present in the straw and, in the form of phosphorus, equally present in the seed. On the other hand, it is to nitrogen that the philosophers of vegetation of the last half of the nineteenth century would attribute the characteristic of vigor, and, indeed, the value of ammonia and of phosphoric acid in the Aspergillus experiment seems not unconnected with its heavy crop of spores and the heavy growth that produced them. Therefore by leaving out of consideration the ash elements we may make a diagram somewhat as follows:



THE AGRICULTURAL PROCESS.

In the foregoing we have been dealing with hypotheses founded on experiments conducted according to the canons of induction.[1] An experiment or series of similar experiments furnished a new truth or a proof of a speculative conception, and this the syllogism classified and converted into a theory that was true as far as the whole meaning attached to the words were not contradicted by other facts not yet recognized as connected with the question or as yet unknown. The discovery of a truth in this way is almost always brought about by human interference and, if the statement be not held too rigidly to the exact meaning of its terms, it may be said that the method disregards time and place. But there is another method of discovering truth in nature, which Mr. Mill in his logic calls a "collocation of facts," which is illustrated by Kepler's discovery of the mathematical figure made by the planets in their passage around the sun.[2] Time and place in an investigation such as this, requiring the collocation of an immense number of observations of other astronomers through a long course of years, are the very elements of a discovery or the making of a scientific generalization.

An investigation on the collocation of facts system has been going on at Rothamsted for over fifty years. Nature is not interrogated in a flower pot at that establishment, and the results of a uniform treatment of the fields under observation has been purified by the variations of a continuous number of seasons. It is an agricultural experiment station where nature is besieged, not attacked sword in hand. The inquiries at Rothamsted may be said to include two great problems: The one relating to the effect of variations in soil conditions under fluctuating atmospheric conditions on the crops; the other being the reciprocal problem as to the effect of crops upon the soil.

It may be of service here to ask "What is a soil?" It is said that it is disintegrated rock, and thus the question becomes an investigation of the conditions which cause disintegrated rock to grow the plants which undisintegrated rock refuses to nourish and of the source of rock. To follow the last out would require us to follow the earth—a satellite of the sun like the moon is of the earth, itself—back to the time when it was being disengaged from the sun[3] as Saturn is now to

[1] A system of Logic, Ratiocinative, and Inductive, by John Stuart Mill, Book III.

[2] Kepler's habit was to rummage through the observations of his predecessors, look at them, in all their lights, and then distill from them the laws which united them. (Tyndall: Six Lectures on Light.)

[3] La Place's Nebular Hypothesis.

be seen disengaging "rings," and when the earth as an original part of the sun was possibly a blazing mass of hydrogen.[1] Nor would such an excursion be satisfactory, for it would be necessary to look upon the rocks as the slag or sediment of the terrific combustion or a cold form of hydrogen gas which is given off when most metals are heated.[2] This, therefore, will suffice that the rocks, particle by particle, are being carried away toward the sea by water which is a compound of hydrogen. Yet the action of water, either in its liquid or glacial state, in grinding down the rocks so as to catch and hold fertility, is not agriculturally speaking of so much interest as its offices in effecting the formation of decayed vegetable matter or humus, which certainly is not a cooled rock. This organic soil is the product of water vapor which originally fed the primitive plants of which the algæ and the lichens, though air-fed plants are, comparatively speaking, highly evolved forms.

From the decay of such forms has arisen the vegetable soil of the globe or humus, which changed under mechanical pressure by heat and exclusion from air, is burnt beneath the boilers of our steam engines in the form of coal, and when reconverted into vegetation is consumed in the animal body. How soon this vegetation appeared after the earth had lost its heat can not be said; but it is not too much to say that it awaited the first clouds, if not the actual fall of rain.[3] How it began or whether nature is even now calling from unorganized matter new forms of life is a question that must be left to those who believe in the creation of an unique parental cell and slow process of natural selection or "evolution," and their opponents, who uphold "spontaneous generation."

There are but few facts in the history of the earth's surface that are not easily matters of unlimited controversy. Even of the Tertiary-Quaternary period which immediately preceded our own we only know that nature seems to have specialized her backboned creatures from the extraordinary beasts—half giraffe and half alligator, the restorations of which people our museums—to a wholly land animal, and changed an as yet unknown climate to one of intermittent periods of ice

[1] Mr. Lockyer's Meteoric Hypothesis. In a letter in French published by the French Academy of Sciences this astronomer put his earlier theory in these simple sentences. The hotter a star is the simpler is its spectrum [fewer kinds of stuffs it has in it] and the metalliferous elements appear in the order of their weight, taking hydrogen as 1. So we have (1) very brilliant stars in which are only to be seen hydrogen in enormous quantities and magnesium, (2) cooler stars as our sun in which we find hydrogen + magnesium + sodium, or instead of sodium, calcium, iron, etc., but no metalloids [oxygen, nitrogen, carbon, phosphorus, and in fact he might have said and did almost say so in the original letter, the minerals of the vegetable kingdom], (3) cooler stars still in which all the metal elements are associated and their lines are no longer visible in the spectrum, but where we find the spectrum of the metalloids and the compounds [such as on the earth?]. Finally the older a star becomes the less there is seen of free hydrogen, and on our globe we find no free hydrogen (p. 344, of the Meteoric Hypothesis). It would appear that Mr. Lockyer's present view is that a swarm of meteors coming together increase in heat until they become a brilliant star like Sirius, and then having reached their limit of gaseous condensation and being, therefore, at their hottest begin to solidify. See Note A, to this chapter.

[2] In Professor Ramsay's address as president of chemistry section, British Association for Advancement of Science (Toronto, reported in Nature, August 19, 1897), he says: "Most minerals give off gas when heated, and the gas contains as a rule a considerable amount of hydrogen."

[3] "As soon as the central heat ceased to act upon the temperature of the surface of the globe and of the atmosphere, the precipitation of vapors must have become almost general * * * and from the first drop of water which fell upon the still burning surface of the earth to the first ray of sunlight which shone upon the ocean is the period when the geologist must look for the plutonic forces upon the crust of the globe." (Revolutions of the Crust of the Earth, by Professor Pilar, University of Brussels.) Mr. T. Sterry Hunt, in a statement prepared at Professor Henry's request, which is published as "On the Chemistry of the Earth," says: "The part which vegetation has played in the chemical history of the globe has not been limited to purifying the air of carbonic acid. It seems to have been the great agent through which so large a force has effected a partial decomposition of the thoroughly burned or oxidized materials of the primitive world. By means of growing plants carbonic acid and water are reduced, giving rise to the various forms of carbon and to hydrocarbonaceous bodies, which act upon the sulphates deoxidizing them."

sheets "a mile or two thick." There are, however, a few facts furnished by geologic changes of an organic nature now in course of consummation that will serve to give, no matter how faintly, a conception, based on recorded experience, of the difference between the inorganic and the organic substances which form the aerated surface of the globe.

To those who for pleasure or health have visited Florida, especially the region of the chain of lakes whose waters, known as the Kissimmee River, first collect in Lake Tohopekaliga and ooze out from Okeechobee into the ocean, it is useless to explain that the country is flat and that the geological soil or "disintegrated rock" is sand. To those who have watched in that region the matter floated out of a descending pipe on its way to tap artesian water and to those who have tasted that water when found, it would be equally useless to say that the region is lifted above the Atlantic by a pedestal which, partly, at least, has been constructed by a coral-making animal.[1] To them it will not be difficult to show that the portion of the Floridian peninsula which is bounded on the west by the sluggish waters of the St. Johns and the Kissimmee, and on the east by the Gulf Stream, is a product of a sea change.

When the waters of the caldron-like Gulf receive the mechanical impress that shoots them through the narrow neck of sea that separates Cuba from Florida, the rapid current eddies in the open Atlantic, and so far as it does so deposits the suspended matters its waters have gathered up from the sediments of the Orinoco, the Mississippi, and the mountain torrents of the eastern slopes of the cordilleras of Spanish North America.[2] Thus the ocean stream, keeping its channel clear by the force of its own momentum, makes a delta for itself in the ocean as the Mississippi makes its "passes" in the Gulf.

Observe the cross section, fig. 3. At the right we have the Gulf Stream sweeping along in its 400 or 500 fathoms groove between precipitous banks of 2 or 3 fathoms below the surface on the Bahama Island side and of 30 or 40 fathoms on the Florida side, and rapidly shoaling as it approaches the Floridian keys. Here is the opportunity of the coral-making animal. Nourished by a warm, swift food-bearing current, the coral animal can excel the builders of the Egyptian pyramids. To aid the imagination the mound marked "Coral reef" may be taken as a beginning of a process which has resulted in the formation of Everglades and the Atlantic side of Florida, and then let the steps be given in the words of Professor LeConte:[3]

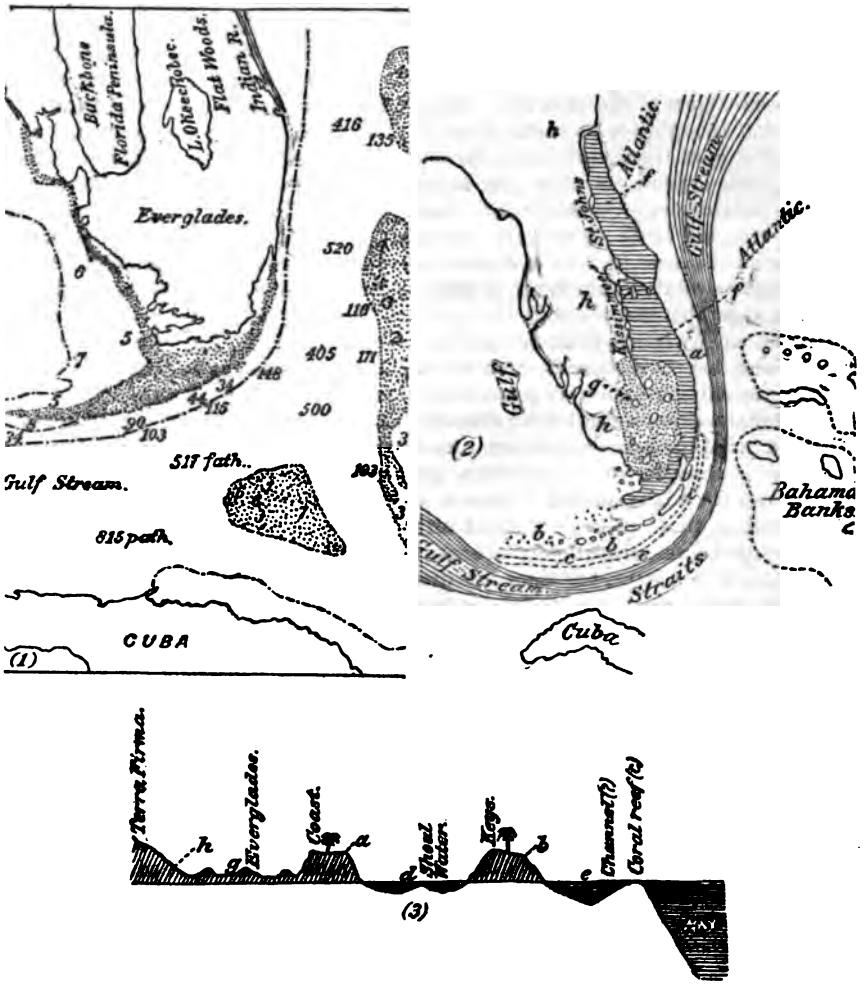
On the living reef islands have just commenced to form. Some are yet only a collection of large coral fragments, the nucleus of an island. Some are more compacted by smaller fragments thrown in among the larger. Some are small, but perfect islands, i. e., coral, sand, and mud have been thrown upon and completely buried the large mass. But none of these are yet clothed with vegetation, much less inhabited by either animals or men. Next come the larger, inhabited islands of the line of keys [where it has been picturesquely remarked that horticulture is carried on with a butcher knife and a crowbar]. On cutting into these the same structure as described above is revealed. These are a string of wave-formed coral islands, and here was once a line of living reef, but the corals have long ago died, because cut off from the open sea by the formation of another reef farther out. Next comes the southern coast. Examination of this reveals the same structure precisely. Here, then, was the place of a still earlier reef. The formation of barrier reefs without subsidence may be accounted for thus: From

[1] The coral making polyp is as much an animal as a cat or a dog is.—Dana on Corals and Coral Islands, third edition, p. 20.

[2] Let it not be said that this is "far-fetched." Listen to Mr. Langley, the secretary of the Smithsonian Institution, in his "New Astronomy:" "The explosion which occurred at Krakatao August 27, 1883, was heard, according to official evidence, at a distance of 1,800 miles, and the puff of its air wave injured buildings 200 miles distant, and, we repeat, carried into the highest regions of the atmosphere and around the world matter which it is at least possible still (1892) affects the aspect of the sun to-day from New York to Chicago" (p. 185).

[3] Compend. of Geology, p. 101.

the manner in which, by my view, the bases of the coral reefs have been formed, viz, by deposition of sediment, there must have always existed a very soft, shallow sea bottom. Along such a shore line a fringing reef could not form, because the chafing waves stir up the mud. But at a distance from the shore, where the



1. Nautical chart of the Florida Reefs and Bahama Islands (Hydrographic Bureau, U. S. N.).

2. A diagrammatic map of Florida. *a* in both diagrams represents present coast, *b* present keys, *c* present reef, *d* present shoal water, *e* present navigable waters, *f* present flats, called flat woods, *g* Okeechobee seeping out to the south through what are now called the Everglades, *h* the backbone of the peninsula. After LeConte, with slight modification of the extent into the interior of the portion marked *f*, the axis of the St. Johns (flowing north) and Kissimmee (flowing south) rivers being considered to have been in the past what the so-called Indian and Halifax rivers (mere salt-water lagoons, fenced off by outlying sand bars or keys) are now.

3. Is a cross section of 2.

water is 100 feet deep, and the waves no longer touch the bottom, a line of reef would form, limited on the inside by the muddiness and on the out or ocean side by the trough of the Gulf Stream. This would be in form a barrier reef, but wholly different in signification from those of the Pacific.

But Professor LeConte was merely interested in the contributions of animals to the geology of Florida so far as those contributions served to check the too wide application of the theory that as a mountain in the South Pacific sank into the waters of that sea the coral animals built up a ring around the sinking mass, which, starting on the submerged and sloping side of the mountain, grew upward and inward as the mountain sunk, and when the mountain had slowly disappeared beneath the surface became its sepulcher—a narrow ring of verdure-dotted coral a dozen miles or more around separating the quiet surface of a lagoon from the wind-tossed waters of the open sea.[1] But imagine this open sea to be replaced by land as flat, though not as easily moved by the wind, as the surface of the sea; imagine the coral band that holds the lagoon to be replaced by a ridge of sand covered with cypress or even less amphibious trees, and the greenish water exchanged for one stained blue black, and the atoll of the South Pacific is changed into the rim and basin of a Floridian lake. As wind and wave drive floating matter upon the coral reef from without, so the same agencies from within drive upon the shore of the lakes in the prairie regions of the Kissimmee the sand and decaying vegetable matters that their shallow bottoms ever give up to the waves created by the heavy winds that sweep across their surface. But behind the ridge thus formed there is a depression something like that existing between the coral reef and the sinking mountain peak, which is sheltered from the wind by the rim of the basin and kept moist by the drainage water of the surrounding land, which is cut off from the lake by this rim. In that climate all the elements for growth of coarse vegetation—heat, moisture, and quiet—are present and there soon appears over the whole surface of the white sand a skin of black. Where flats have existed such as those through which a tortuous Floridian creek empties itself, or joins two lakes, the conditions are such that beds of muck 2, 3, 4, or more feet are created, which when the lakes are drained are exposed to view. The soluble portion of this decayed vegetation or humus, though brown in color, lends the lakes under certain sky effects there a dark-blue shade, but does not appear to contaminate their waters.

But this water-logged humus is quite different from the leaf mold of the forest. No mosses add nitrogen to its substance while it is sopped in water; no nitrogenated air circulates within its body; no trees prevent the fierce chemical action of the sun upon its spongy surface. Cracks wide enough for a man to thrust his arm in seam its body, and it will smolder for weeks when ignited from the fires set to the tree like weeds that naturally spring up when it is by drainage freed from stagnant water. The whole mass halts between a coal bed and a garden soil, and as yet is neither. How different the humus of the forest-covered mountain sides. A myriad of bugs and worms aerate the mass and knead it with the geologic soil upon which it rests. Thus it acquires a smaller range of variation under extremes of extension by moisture and of shrinkage by dryness than it naturally possesses, and though it works its way slowly down into the valleys, enough is still retained upon the slopes to insure the existence of the mountain forest. Thus, while nature is tirelessly making "muck" upon the banks of the Gulf Stream opposite Florida, man upon our mountain side is with equal industry baring the rocks of "humus" by processes which two hundred years ago had left no alternative to the governments of Europe but to interfere to prevent a national calamity.

With some hesitation as to the entire propriety of its introduction in support of the difference between swamp muck and forest humus, but still, as suggestive,

[1] The individual characteristics of particular atolls and of the lagoonless atolls in general are all fully described in Mr. Dana's Corals and Coral Islands and in Mr. Darwin's The Structure and Distribution of Coral Reefs, first edition, 1842; third, 1889.

the following analysis of gas taken from a (wet) manure heap about 3½ feet deep is given:[1]

	Upper part.	Central part.	Lower part.
Carbonic acid (CO_2)	21.6	31	37.1
Nitrogen	78.4	35.5	4.9
Marsh gas (methune) CH_4		33.5	58
	100	100	100

This explains the difference between "muck" and "humus." It is a difference between the generation of two forms of carbon, one of which (carbonic acid) in daylight is useful to the leaves of plants but not to the roots, and nitrogen, which is useful to the roots, no matter how theory fixes up the modus of the process, but not to the leaves.

"The universal opinion," says Professor Liebig "that the substance called humus is extracted from the soil by the roots of plants for the purpose of assimilation is untenable, for there are the most conclusive proofs that humus in the form in which it exists in the soil does not yield the smallest nourishment to plants." Which statement he endeavors to substantiate by applying the arithmetic of the chemical laboratory to the "amount of basic metallic oxides, potash, soda, lime, magnesia, iron, and manganese" produced annually, "on the average," by the growth of firewood on an acre of Hessian pine trees.[2]

Against this argumentation of the brilliant chemist the accurate and cautious experimenter Saussure may be quoted: "Plants do not take all their mineral food out of solutions such as those which are artificially made by dissolving hydrocloride of lime, iron, or manganese in pure water; but they take them for the most part from compounds which we are unable to form, namely, out of such compounds in which these salts are chemically combined with oxygen, hydrogen, nitrogen, and carbon in humus extract, a fact that can only be revealed to us by an examination of the ashes of the plant." As there is nothing in the ingenious guesses, though based on remarkable experiments, which have affected Saussure's statement made in 1804, and as in the "arid soil" of the desert, though there is only one-fourth as much humus as in a "humid soil," that arid humus is three times richer in nitrogen than the humus of the "humid soil,"[3] the statement of M. de Saussure will be adopted as the truth so far as known for practical agriculture, but see pp. 957 and 960.

Man nevertheless is not the only agency that denudes the mountain sides of their mold. In many parts of England a weight of more than 10 tons of dry earth passes annually through the body of the worms contained within the boundaries of a single acre and by them is brought to its surface. In woods, if the loose leaves of autumn are removed, the whole surface will be found strewed with the castings. A professor in charge of the State forests near Nancy, France, has pointed out this circumstance as a beautiful example of the natural cultivation of the soil. Thus, on hillsides, a considerable quantity of elaborated earth is moving down into every valley.[4] But if the trees are there moisture is there, and with moisture mosses, fungi, and worms, the agricultural implements of nature. Von Hensen placed two worms in a vessel 18 inches in diameter, which was filled

[1] Deherain in Recherches sur les fermentations du fumier de ferme. Ann. Agron., 10 (1884) p. 385, quoted by A. Hébart and translated by the Experiment Station Office of the Agricultural Department.

[2] Chapter on the assimilation of carbon in Organic Chemistry.

[3] Professor Hilgard.

[4] Darwin, Formation of vegetable mold, pp. 305, 5, 308. This book was preceded by a paper in 1837, which was not thought very highly of in some quarters. After Darwin, Hensen is connected with the propagation of the idea.

with sand, in which fallen leaves were strewed, and these were soon dragged into their burrows to a depth of 3 inches. In six weeks an almost uniform layer of sand four-tenths of an inch in thickness was converted into humus by passing through the alimentary canals of these two worms. But it is not by flower-pot experiments alone that this matter has been proved.

"On December 20, 1842," says Mr. Darwin, "a quantity of freshly broken chalk was spread over a part of a field near my house which had existed as pasture certainly for thirty years. The chalk was put there to note the distance down it would be found at some future time. Twenty-nine years after (November, 1871), a trench was dug across this part of the field, and a line of white nodules could be traced in both sides of the trench at a depth of 7 inches from the surface. Excluding the turf, the mold had been thrown up at an average rate of two-tenths of an inch a year. Another part of the same field was mossy, and, as it was thought that sifted coal cinders would improve the pasture, a thick layer was spread over this part either in 1842 or 1843 and another layer some years after. In 1871 a trench was dug, and many cinders lay in a line at a depth of 7 inches beneath the surface and another line at a depth of 5½ inches parallel to the one beneath. Had the land been plowed land, instead of being permanent pasture," continues Mr. Darwin, "the accumulation of mold in that field would probably not have been

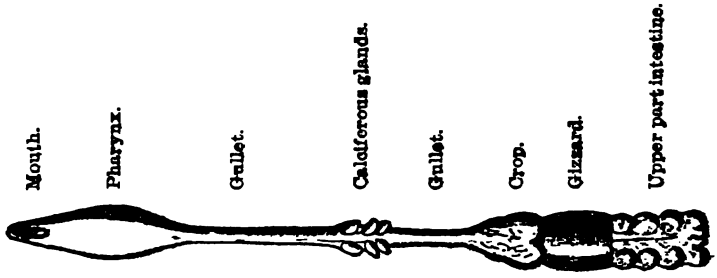


Diagram of alimentary canal of an earthworm (Lambricus), after Lankester.

so fast; had it been thicker, it would probably have been slower." He had a sloping field called the "stony field," the large stones of which he doubted in 1841 if he should ever live to see the worms cover up when he put it down to pasture to start the process going. In 1871 a horse might gallop over the field and not strike a single stone. The thickness of the matted turf was not quite half an inch, then came 2½ inches of stoneless mold, then coarse clayey earth full of flints, such as could be found in the fields around. The average rate of the accumulation above the sinking stones was not quite 1 inch in twelve years, or 0.083 inch a year.

The form of this extraordinary agricultural animal is well known. With the exception of the fisherman, few care to come in contact with the creature, and its defenselessness is proverbial. The inside of the worm is not more attractive than the outside, as may be seen from the sketch herewith annexed. Through this train of vital mechanism pass enormous quantities of dirt, which is discharged by the animal at the mouth of its burrow. Half-decayed leaves, petioles, peduncles, and decayed flowers are likewise swallowed and the nutriment they contain likewise assimilated. The leaves are drawn into the mouth of the burrow and are moistened with a sort of saliva, which acts on the fresh leaves in a remarkable manner, changing the green color of the chlorophyll-bearing cells to a brown. The saliva is the same as the pancreatic secretion of the higher animals.[1] It operates with an alkaline reaction and converts vegetable cellulose into soluble carbohydrates and is, in fact, a ferment. The calciferous glands excrete lime.

Farmer and gardener are apt to be deadly enemies of this harmless little animal.

[1] Léon Fredericq, quoted by Darwin in his Formation of Mold, and by Bunge in his *Physiological and Pathological* Chemistry, tenth lecture.

It was thought that it feeds upon the tender roots of plants. Upon this point the testimony collected experimentally by Wollny may be cited.[1]

1. In no one of my experiments have the plants suffered the slightest injury.
2. Other things being equal, the soil filled with worms was very noticeably more fertile than those free from worms.
3. The pulverization of the soil by the work of the worms lessened its capacity to hold water and increased the amount of air beneath its surface.
4. The work of the worms favorably altered the mechanical properties of the soil by making it more porous.

Hensen having stated that the burrows made by worms were the paths of the roots of plants, experiments were undertaken by Mr. Méhured Djémil, of the experiment station of the University of Halle, to test his conclusion. The experiments appear to demonstrate the error of this incautious remark of Mr. von Hensen, as may be supposed on examining the illustration of the root given above. But the results obtained by the experimenter and tabulated by him are far more interesting in other particulars.

Eighteen tubes or pots being selected, each 40 inches deep and 8 inches wide, they were separated into two sets. In one set worms were to be placed, in the other no worms were to be admitted. Into three pots of each set were then placed a similar soil, "sandy clay;" into three more pots of each set was placed a similar soil, "stiff clay," and into the remaining three pots of each set was placed a "clayey sand." The soils were air-dried, sieved, and then dried at a temperature of 212° F. The results were as follows for the leguminous plants (those for potatoes, beets, and vetch practically are the same and are not given):

Experiments showing effect on vegetation of the work of earthworms.

No.	Name.	Number of plants.	With or without worms.	Harvest.			Increase due to the worms.			Character of soil.
				Number of seeds.	Weight of seeds.	Number of husks and pods.	Seeds.	Weight of seeds.	Husks and pods.	
					Grams.		*Per ct.*	*Per ct.*	*Per ct.*	
I	Flax..	15	Worms ..	480	2.18	92	187	202.7	87	
1	Flax..	15	None.....	167	.72	49				
2	Rape.	6	Worms ..	1,443	1.40	227	276	180	26	Sandy clay.
II	Rape.	6	None.....	382	.50	179				
3	Pease.	7	Worms ..	507	13.30	156	193	155.7	129	
III	Pease.	7	None.....	173	5.20	68				
4	Flax..	15	Worms ..							
IV	Flax..	15	None.....	230	2.20	80				
5	Rape.	6	Worms ..							Clay.
V	Rape.	6	None.....	97		28				
6	Pease.	7	Worms ..	531	13.70	146	238	230.5	175	
VI	Pease.	7	None.....	157	3.00	53				
7	Flax..	15	Worms ..	534	2.23	104	159	168.6	147	
VII	Flax..	15	None.....	206	.83	42				
8	Rape.	6	Worms ..	766	1.15	187	447	858.3	183	Clayey sand.
VIII	Rape.	6	None.....	140	.12	66				
9	Pease.	7	Worms ..	458	9.50	133	244	83.6	189	
IX	Pease.	7	None.....	133	5.20	46				

THE ACTINIC ACTION OF THE SUN RAY.

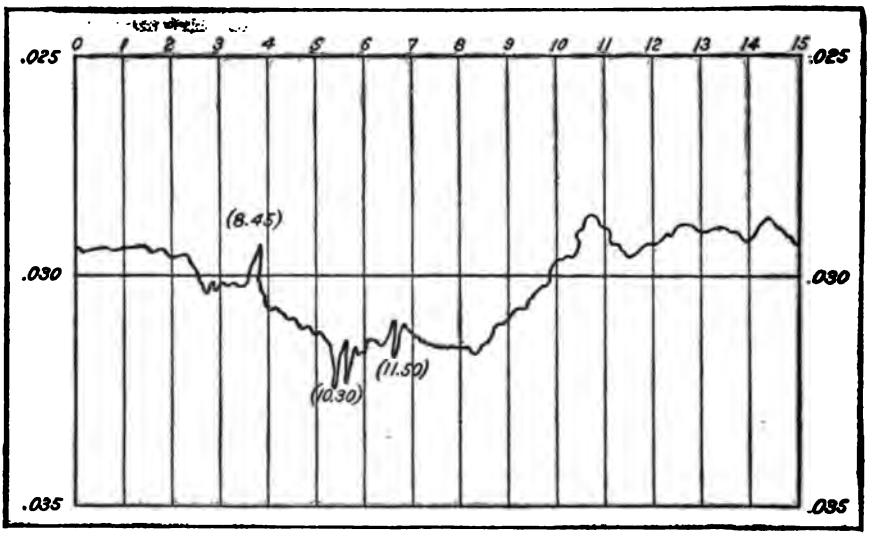
The value of water to vegetation in any form and of humus to vegetation in its higher or mammalian-nourishing forms has been noted. It remains to speak of light and heat, without which water is as sterile as a rock, if not, indeed, a rock when the thermometer is below 32° F. The icebergs that endanger the navigation of the North Atlantic carry neither palms nor lichens.

We shall consider the solar rays to present three activities, a light-making, a heat-giving, and a chemical-acting activity, which, though bound together like the strands of a rope, are yet separable in their effects. Plants breathe day and night,

[1] Zeitschrift für wissenschaftliche Zoologie, 1887, Band 17; quoted by Darwin.

but it is only in the light of the sun that their leaves disengage oxygen and assimilate carbon, which, as far as is known, is a chemical process. Attention will therefore be given to the chemical or "actinic" constitution of the atmosphere; in other words, the action of the actinic strand so to speak of the rays of the sun after they have entered our atmosphere.

If it were possible to follow our atmosphere upward until it edges off to extinction or where what there is of it is, as is said in the infinitesimal calculus, less than any assignable quantity, it would be found to be an atmosphere within an atmosphere, as the Gulf Stream is a body of water within another body of water. It is perfectly well known that a "perfect vacuum" in a tube will not pass electricity,[1] yet it is equally certain that there is at least a connection between the sun and terrestrial electric currents as those currents operate upon the surface of the earth, as the following incident will show: On August 3, 1872, Professor Young,[2] while observing at Sherman in the Rocky Mountains, saw three notable paroxysms in the sun's chromosphere or colored part of its atmosphere. Jets of luminous matter of intense brilliancy were projected at 8.45, 10.30, and 11.50 a. m., local time. The photographer of the party who was making the magnetic observations told Professor Young that he had been obliged to give up work as the magnetic needle had been "swung clear off the limb." Now, at Greenwich, in England, in addition to taking a daily photograph of the sun, they have in their cellar an apparatus which traces the fluctuations of the daily "magnetic vertical force." To the astronomer royal at that institution Professor Young immediately wrote, and, correction for the difference in time being made, here is the reply:



Greenwich Observatory (England) magnetic observations on August 3, 1872. The tremulous line is made by a magnetic needle carrying a small mirror, whence a spot of light is reflected upon a strip of photographic paper, kept continually rolling before it by clockwork. If the needle is still, there will be a straight line on the paper. If the needle shivers, the light spot vibrates with the motion and the line becomes sinuous or more and more sharply zigzaged as it trembles in the grip of the unknown force which it obeys. [The illustration and incident are given by Professor Langley in his New Astronomy. Houghton, Mifflin & Co.]

[1] Radiant matter, Crookes. Lecture before the Royal Society of England.

[2] Professor of Astronomy in the College of New Jersey (Princeton). Author of the work, The Sun.

Although Professor Crookes could not send a current of electricity from one end of a glass tube which had been exhausted of all its atmospheric air to the other end, he found he could do wonderful things by discharging a current from the negative or cathode pole of an electric battery into a tube in which the air had been so far exhausted that it exerted a pressure of only one one-millionth of an atmosphere, the pressure of 1 atmosphere being capable of holding up a column of mercury 30 inches above the font or basin of mercury at the bottom of the column. He found that the stuff remaining in the tube struck out in a straight line, from which it could not be made to deviate any more than the force of gravity which strikes for the center of the earth can be made to deviate. He found that even a sunbeam acting on a pith ball striped longitudinally white and black and suspended in such a vacuum would make the ball revolve with such rapidity as to jeopardize the safety of his delicate apparatus, just as the world, or, rather, its atmosphere, might be supposed to be made to spin by sunbeams, were it a pith ball in space, if it could be alternately striped from pole to pole with "light and shade." But when Mr. Crookes let more and more atmosphere into his apparatus he found the greenish phosphorescence change to purplish, that is to say, bluish, and that the current from the negative or cathode pole flowed to the positive or anode pole, as that was moved around, and could be deflected by a magnet.[1] "Could we float," says Professor Langley, "upon the uppermost layer of our atmosphere, the sun would appear to the spectator as bluish."[2] Possibly he might say, something on the order of the cold, cheerless blue of the hissing electric street lamp. But what these remarks are particularly designed to introduce and emphasize is the penetrating and dissociating or chemical effects of solar emanations, whether they be called sunbeams, radiant light, radiant matter, or X-rays.

The progress made by science, says M. Duclaux, professor of physics in the Agricultural University of France, leads us more and more to attribute to chemical rays a special action which is different from and, to a certain extent, independent of that of the heat and light rays, for they seem when passing through our atmosphere to obey laws peculiar to themselves. Landscape photographers well know that days equally warm or days equally luminous do not give the same chemical effects, and in northern lands, where vegetation is well known to be specially susceptible to the power of the chemical rays, growth proceeds more rapidly than in temperate regions, notwithstanding the fainter light and the lower temperature. To what are these differences due?[3]

To answer this question the thermometer will not suffice. That instrument, as its mercury rises, tells only that the mercury has become lighter, as all bodies appear to do when heated.[4] So Professor Duclaux selected a body which, being an organic body, is more or less dissipated by the action of the light, from association with the illuminating power of which, indeed, he found it impossible to separate the special chemical function of the sunbeam. This actinic measure was oxalic acid, easily formed from cellulose by heating with nitric acid. Two or 3 grams of the crystals of this acid are dissolved in 1¼ pints of water. In the proportion that the acid contents of this solution disappear, as determined by acidimetric measurements, the actinic or chemical effect of the atmosphere is told off, for M. Duclaux distinctly states "that neither the solar heat nor the heat produced in the

[1] Crookes's Lecture on Radiant Matter.

[2] The Sun, Young, 3d ed. (1890), p. 296; Professor Langley's account of some experiments, particularly p. 306.

[3] Atmospheric Actinometry and the Actinic Constitution of the Atmosphere, by E. Duclaux, professor of physics in the Agronomical Institute, Paris. Published by the Smithsonian Institution as its one thousand and thirty-fourth contribution to knowledge, by request of a committee of experts.

[4] Crookes's Lecture on the Mechanical Action of Light, "When the substance weighed was of a temperature higher than that of the surrounding air and the weights there appeared to be a variation of the force of gravity."

formation of carbonic acid [from the destruction of the oxalic acid] has any perceptible effect upon the solution as an index of the chemical action of the sunbeam, though on fine days half of the oxalic acid may be dissipated."

Now, in the first place, it will be found that the chemical changes produced in the oxalic-acid solution are influenced by the strength or amount of this acid dissolved in the water, by the depth of the vessel used to hold the solution, and the length of the exposure.

(*a*) The effect of the strength of the solution is shown by this experiment:[1]

	Standard strength.	One-half.	One-fifth.	One-tenth.
Acid dissolved in 1½ pints water.....grams..	63	31.5	12.6	6.3
Quantity of acid burned by oxygen of air .....per cent..	4	9	28	89

(*b*) The effect of the depth of the solution is shown by the following experiment, each vessel containing 10 cubic centimeters of solution one-twentieth of normal:

Acid burned.	Cone-shaped vessel.	Cylindrical tube.	Shallow, wide vessel.
	Per cent.	*Per cent.*	*Per cent.*
August 16 (8 a. m. to 3.30 p. m.)	29	.....	65
August 17 (8 a. m. to 3.30 p. m.)	24	14	97
August 18 (8 a. m. to 3.30 p. m.)	34	13	84
August 19 (8 a. m. to 3.30 p. m.)	31	14	87

As the cylindrical or "test" tube was put in the shallow, broad-bottomed vessel to secure uniformity of temperature, the result is at least accurate for those two in comparison.

(*c*) The effect of duration of exposure is shown by the following experiments performed on "Mont Dore," September 6, 1888, 8.30 a. m.: Four like vessels were exposed to the sun, and at the intervals stated below a vessel was withdrawn and the acid burned measured:

Time.	Acid burnt.
	Per cent.
After 2 hours	.....
After 4 hours	1
After 8 hours	10
After 10 hours	13

Observe the time lost in starting, but especially the rapidity of combustion from 12.30 to 4.30 p. m. Observe also that notwithstanding the lowness of the sun at 6 and 7 o'clock in September how fast the acid was burnt. "It is always so," says M. Duclaux, "whether the transformation of the oxalic acid be slow, as on Mont Dore, or quick, as I have sometimes found it at Paris." But this is not all. An exposure for one day of a vessel will render its oxalic acid contents more readily consumable the next than the contents of a vessel exposed for the first time. For instance, four vessels being prepared and exposed, two were examined at the close of the first day, and the amount of oxalic acid burned was carefully noted. The

[1] Saussure found that young plants died in an atmosphere of one-half atmospheric air and one-half carbonic acid gas but flourished in an atmosphere composed ½ common air and ½ carbonic acid gas. But in the shade the smallest quantity of carbonic acid gas added to the common air *was injurious.*

other two were left untouched and the next day were again exposed with two new vessels, and at the close of that day all four were examined:

	Per cent burnt.
Vessel exposed untouched for two days, September 2 and 3	68
Vessel exposed September 2 and examined at close of one day	10
Vessel exposed September 3 and examined at close of one day	24
	— 34
Favor of accumulated propensity	34
Vessel exposed untouched for two days, September 4 and 5	38
Vessel exposed September 4 and examined at close of day	12
Vessel exposed September 5 and examined at close of day	11
	— 23
Favor of accumulated propensity	15

In speaking of these matters in the present connection it must not be supposed that Professor Duclaux announced them as facts bearing upon agricultural chemistry or that he intended to present any analogy in discussing the conduct of oxalic acid, which occurs in almost every plant, under the action of the sunbeam, to the action of the sunbeam upon the union of nitric acid sent up by the roots to the leaf and the cellulose within the leaf when the leaf is sunlit. Professor Duclaux's tests of his apparatus nevertheless show how the organic acids in the leaf may be varyingly affected by the sunbeam, one day this way, another that; but as this is not exactly what he intends to prove by his apparatus, we may turn, in justice to him, to his demonstration of the fact that chemical effects of the sunbeam are independent of thermal effects thereof and are therefore not measurable by meteorological implements. "The principal lesson of my memoir," he says, "is that the actinic force of the day is not the same for the same day in different parts of the globe, and its effect increases more rapidly than the duration of illumination increases."

First, why does vegetation progress more rapidly in northern lands than in France? To Professor Elfving, at the University of Helsingfors, latitude 60° 10', where the day is fourteen hours long in September, and the sun 38° above the horizon at noon, was sent an oxalic solution and ten vessels exactly like those Mr. Duclaux was using in France. On five days the following observations were made:[1]

Actinic work of solar rays at Helsingfors.[1]

Date.	From 8 a. m. to 4 p. m.		All the arctic-circle day.	
	1887.	1888.	1887.	1888.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
August 27	42	56	55	75
August 28	50	50	65	68
August 29	53	55	61	71
September 2	74	49	87	59
September 4	77	49	80	67

NOTE BY MR. ELFVING: The difference between the first three days of 1887 and the two others of that year is great. It probably arises from the fact that the atmosphere was washed out by heavy rains on August 30 and September 1 and 2. I observed this effect of rain in March last. [The difference between the two years on the two September days is not explained. Both those days in 1888 had a "very clear sky."]

[1] It is proper to explain that in the first table the figures of the two years have been put together by the writer of this chapter, and M. Duclaux is in no way responsible for the combination if an improper one to make.

M. Duclaux had then his record made upon the bare table land around the Puy de Dome [illegible] of the English Channel a friend had made, at his request, a series of observations, which are as follows:

Actinic work of solar rays at St. Pierre le Port.

Date.	Work 8 a. m. to 4 p. m.	Remarks.
1888.	Per cent.	
[illegible]	44	Clear weather till 2 p. m.; later, cloudy.
[illegible]	[illegible]	Haze till 2 p. m.; later, cloudy.
[illegible]	[illegible]	Very clear till 2 p. m.; later, cloudy.
[illegible]	25	Three-fourths cloudy till [illegible] a. m.; clear, 10 to 3 p. m.
[illegible]	23	Half overcast in morning, then clear.
[illegible]	[illegible]	Half overcast all day; slight fog.
[illegible]	[illegible]	Slightly overcast in morning, then clear.
[illegible]	[illegible]	Do.
[illegible]	[illegible]	Fine.
[illegible]	[illegible]	Do.
[illegible]	42	Warm; very close; clear.
[illegible]	22	Covered in morning and afternoon; clear from 12 to 3 p. m.
[illegible]	[illegible]	Overcast; rain [illegible] to 11 a. m.
[illegible]	24	Unceasing rain.

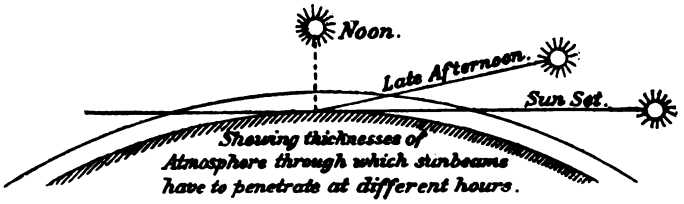
Here we have the register of the chemical work done by sunbeams within the arctic circle, the land of the "midnight sun," and by those that shine upon the seas that surround the land of the best European farming. Let us then supplement these self-evident figures with those taken by M. Duclaux at an altitude of 3,600 feet (1,100 meters) above the sea.

Actinic work of solar rays at Mont Dore, France, altitude 1,100 meters.

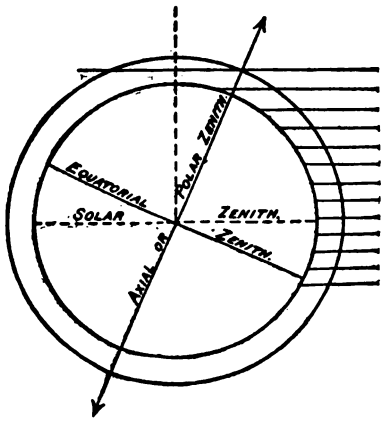
Date.	Work 8 a. m. to 4 p. m.	Remarks.
1888.	Per cent.	
August [illegible]	22	Fine day; cumulo-cirrus and cirrus.
August 30	15	Cirrus all day.
August 31	15	Large white cumuli.
September 1	15	Do.
September 2	10	Middling day.
September 3	24	Quite a fine day; many cirri.
September 4	12	Middling day.
September 5	11	Do.
September 6	12	Quite a fine day; some cumuli early.
September 7	11	Middling day.
September 10	11	Quite a fine day, with a few clouds.
September 11	7	Do.
September 12	18	Fine day; hot sun; a few cumuli.
September 13	25	Fine in morning; middling later.
September 14	15	Fine day; very warm.
September 15	9	Very fine day; as yesterday.
September 16	4	Middling day; warm and heavy.
September 17	29	Day divided between sun and clouds.
September 28	49	Rather a dull day; hazy, but no clouds.

M. Duclaux comments on these remarkable facts in these words: "What strikes us in reading these figures is their smallness, even on fine days. They are the smallest I have ever had to record in August and September for so many times. Yet September was fine at Mont Dore in 1888. But is it not noticeable how the character of the day and its actinic value do not square? Thus the very fine day of September 15 gave only a combustion of 9 per cent, while the slightly veiled day of September 28 gave a combustion of 49 per cent. This confirms my contention that we have missed our way in considering the chemical action of solar light as independent of locality and proportionate to time of exposure or as measured by meteorological instruments."

Those who have read Mr. Du Chaillu's Land of the Midnight Sun will not require any particular description of that romantic country or its people. It will suffice to say that for about one hundred and eighty-six days, during the summer period north of the equator, day and night are not so characterized by light and darkness as in more southern climes. The earth leans over toward the sun and the arctic pole points in such a way that the sun's rays are constantly striking the earth behind it, though for the remainder of the year the sun's rays never hit the pole at all. It was Sir David Brewster that showed the effect of this on the arctic atmospheric illumination and accounted for its redness. Mr. Lockyer, in illustrating this fact, remarks: "One form of aqueous vapor in our atmosphere exerts a powerful obliterating action on the solar light, commencing at the blue end of the spectrum and gradually creeping toward the other or red end."[1] But here is his diagram of Brewster's theory:



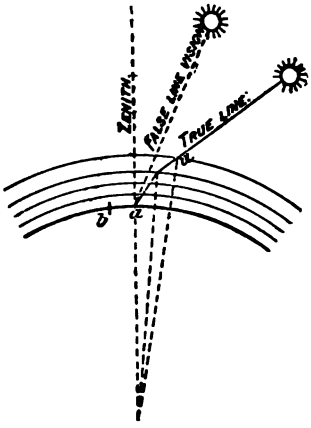
For the purpose now in hand it is necessary to arrange this diagram a little differently, reconstructing it so as to show the increasing thickness of the atmosphere through which the sun rays must penetrate in order to reach the arctic surface of the globe. Then the diagram will have this form for June 21 for some thousands of years yet, by which time the south pole will have gradually acquired the one hundred and eighty-six days of exposure to the sun now enjoyed by the north. If, however, we consider the sunbeam as striking the convex surface of the exterior of the atmospheric envelope of the earth, then the diagram would have to be again changed; for the atmosphere of the earth, being denser than the "void" of space, would act like a convex lens and focus the rays—let us say for convenience, at the center of the earth—as those rays came out of the "void." Rearranging the original Lockyer diagram to correspond with this suggestion of physics, we have a conception in which the course of the sun's rays through the artic atmosphere is shorter than in our preceding diagram; but they are refracted or bent and the value of the sunbeam is proportional to the angle and the manipulation given it by the atmosphere; that is to say, its "refraction" and its "dispersion" into its elements, that is, if any dispersion occurs at all.[2]



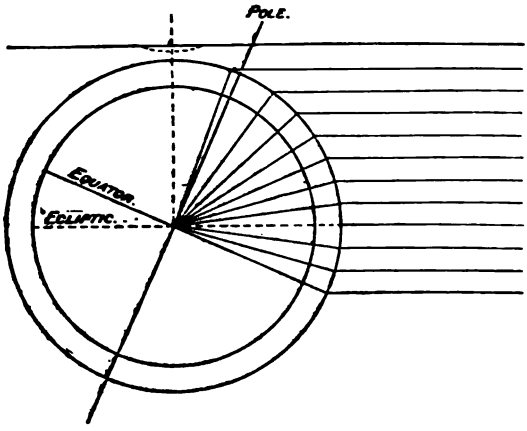
[1] Chemistry of the Sun, pages 37 and 38.

[2] Hankel is quoted by Professor Goodale (who in his Botany brings together the chief characteristics of the investigations up to 1885 and points out that while the spectrum absorption of chlorophyll shows up for the chemical or blue end of the prism-divided sun ray, direct experimentation is equally positive for the red end) to the effect that "the angle at which a beam of light strikes a plate of glass makes a noticeable difference in the amount of chemical rays which can pass through it. Thus, while at a vertical angle 81 per cent of such rays are transmitted, the rest being absorbed, at an angle of 60 degrees the amount transmitted is reduced to 71 per cent and at 80 degrees to 33 per cent."

There is in France an experiment station of a peculiar kind. It is called a station of agricultural climatology, and its object is to study experimentally the effect of sunbeams on vegetable life. Its director is the well-known astronomical writer, Camille Flammarion. Some singular results, though not new, have been proved at that establishment. It seems that if there is anything in the atmosphere that may cause the sun rays to tinge more toward the red of the spectrum, the

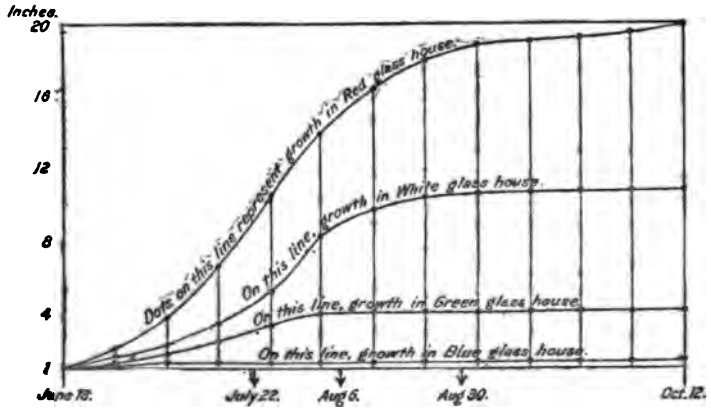


A ray striking our atmosphere is "bent" in so as to strike the earth at a instead of b. (After Fernet Traité de Physique.)



Arrangement of Sir David Brewster's diagram on the hypothesis that light is focused by the atmosphere.

effect is to hasten the growth and to elevate the sensitiveness, the nervousness, so to speak, of a sensitive plant to the highest pitch, while under blue effects the sensitiveness and the growth are reduced to a minimum. Here is the way four sensitive plants (*Mimosa pudica*) placed, respectively, in a blue-glass house, a green-glass house, a white-glass house, and a red-glass house grew during one hundred and twenty-two days:



And here are the plants—not, indeed, the four mimosas, but four lettuce plants, the one under white glass heading up, the one under red glass run up into the air, while its foliage drooped like a willow or a "novelty."

In these experiments only plants grown under white or red glass have borne fruit, and that the red glass grown fruit can not compare with that of the white glass. It is suggested that the most important part of this experiment is the definite establishment of the fact that white light will produce three times as much weight of roots as red light and one hundred times as much as blue light.

Effect of the different colors of the solar spectrum upon cabbage lettuce.

We have now passed in review the formation of the agricultural soil in which, as we shall see, the root imbeds itself and of the action of light upon the leaf, as spoken of in the first section of this paper, and we may now pass to the results of fifty years' experimentation at

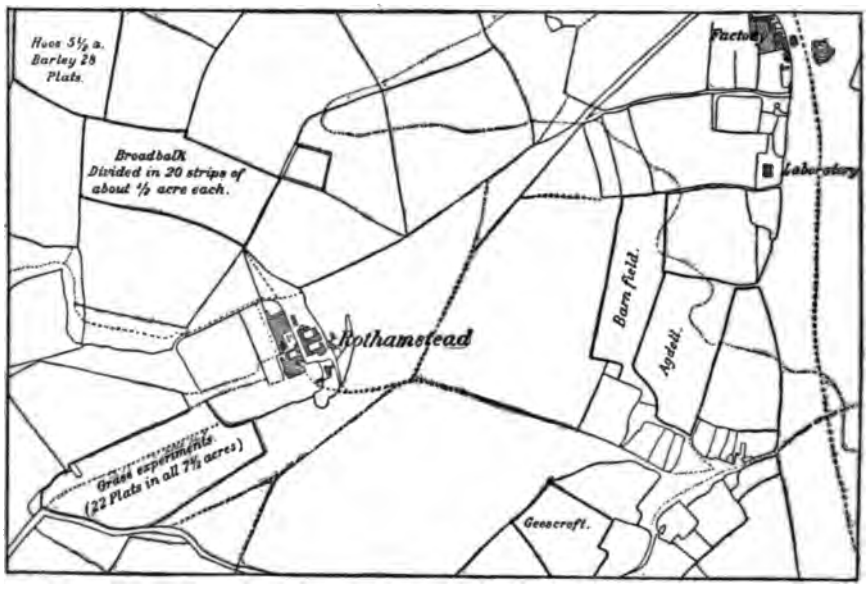
THE ROTHAMSTED EXPERIMENT STATION.

Rothamsted is a country place in Hertfordshire, 25 miles from London. Soon after coming into possession of the place Sir John Bennet Lawes began experimenting, at first in flower pots and then in the open field, and the researches of Saussure on vegetation were the chief subject of his study to his end. Of all the experiments made about 1834 those in which the neutral phosphate of lime was rendered soluble by means of sulphuric acid and the mixture applied for root crops gave the most striking results. In 1843 more systematic field experiments were commenced and the experimental station founded. The continuation of these experiments is insured by the gift of $500,000, the laboratory, and certain areas of land by Sir John. In 1889 trustees were appointed and a committee of management selected. The trustees are Sir John Lubbock, F. R. S., Lord Walsingham, F. R. S., Sir John Evans, K. C. B., treasurer of the Royal Society. The committee consists of nine members, four from the Royal Society, one from the

Chemical Society, one from the Linnean Society, two from the Royal Agricultural Society, and Sir John himself. Up to the present Sir J. Henry Gilbert has been associated with the founder in the conduct of the experiments for a period of fifty-four years. At first an old barn was used for a laboratory, but a laboratory was subsequently built by public subscription of agriculturists and presented to the founder in 1855. The staff has been one, two, and sometimes three chemists, two or three general assistants, a botanical assistant occasionally, two or three computers and record keepers, and a laboratory man and other help as occasion required.

There are now more than 40,000 bottles of experimentally grown vegetable produce, of annual products, of ashes, or of soils, besides some thousands of samples not in bottles. Nothing has been done at Rothamsted in the way of manure-feeding-stuff or seed-control.

The investigations have covered three inquiries, (1) agricultural vegetation, (2) agricultural characteristics of soil, and (3) manure as affected by the food and condition of live stock.



Agricultural vegetation.—For forty-two years experiments have been made in the park on the mixed herbage of permanent grass land. The plots vary from an eighth to half an acre, the whole area being 7 acres. The results to be watched for were pointed by the following considerations:

Assume a grass field. Its vegetable population is not uniform, but is as mixed as the human population of a Western State that has felt the full tide of a varied European and American colonization. The true grass family, the bean family, the composit family, and others, have representatives all struggling for existence. Now, it was known that wheat, oats, timothy, and other grain plants, or true botanical grasses, agree among themselves in demanding the same kind of manure. It was also known that plants of the bean and clover order—leguminosæ, as they are called—vary widely as to their demands, while crops of other

families—root crops (the cruciferæ, or mustard family), potatoes (belonging to the deadly nightshade or belladonna family, called solanaceæ), and others exhibit characteristics differing both from the grain-like or true grasses and still more from the bean and clover like plants of the great leguminosæ family, which is, next to the compositæ or sunflower-like family which is so largely made of weeds, the largest family of the vegetable kingdom. Now, which of this mixture of vegetable population is to be encouraged?

In the first place we have the popular artificial manures—nitrates, phosphates, and the alkali, potash—and next the manure of the farmyard. With these let us experiment to get the fifty families of the Rothamsted field to yield the agricultural product called hay in its best alimentary form. 1st., two unmanured plots, in all half an acre, show that seventeen true grasses, four leguminous plants, and the representatives of twenty-seven or more other families contribute to every 100 pounds of hay the following proportion:

	Pounds.
Grasses	65 to 70
Legumines	7¼
Other families	20 to 25

2d. Farmyard manure reduced the number of contributors to the hay permitted by the unmanured half acre, raised the contribution by weight of the true grasses, but lowered that of both the legumines and the other families. 3d. In order to illustrate the effect of the nitrogenous and other "mineral" manures applied in excessive doses for many successive years, it may be said, to take an extreme case, that the legumines have been completely poisoned or crowded out, and the other families nearly so, while about a dozen grasses have contributed from 95 to 98 per cent of the hay. The philosophy of this result is simple enough; any manure that favors an individual family or species of a family ruins natural competition. Nitrate of soda, or, better, equal parts of sulphate and muriate of ammonia (all nitrogenous manures), makes the true grasses luxuriant, but the beans and clovers which we have found getting nitrogen from the air are pushed to the wall by dosings of nitrogenous manures. "Purely mineral manures, supplying an abundance of potash and phosphoric acid, though reducing somewhat the number of the competing families, do not increase the luxuriance, though they favor the stemminess of maturation of the grasses, but reduce the percentage by weight of such herbage in the hay." But while the potash and phosphatic manures act thus on the true grasses that the nitrates nourish, they increase the luxuriance of the legumines and the weight thereof in the hay, while reducing the number of the miscellaneous competing families and their product. To close out this paragraph let us say, perhaps too dogmatically: Nitrogen makes grain-grass hay; phosphorus and potash, bean or clover grass hay, and farmyard manure, as we shall see in the next paragraph, makes hay.

Variety of vegetation adds great value to permanent grass land. Unmanured land produces 1 ton of first-crop hay to the acre having the most varied ingredients; potash will yield about one-half more of much less variety but considerably filled with leguminous plants, in fact, it produces the best mineral manure hay; but "mineral and nitrogenous manures together" run the yield up to thrice the amount of unmanured land, yet of the 95 to 98 per cent of the 3 tons of first-crop grain-family grass it produces 90 per cent is made up of four to six of the most freely growing and coarser species, characterized by great stemminess. To put the matter statistically, a horse would take into his stomach in eating the produce of an acre of unmanured pasture 7¼ pounds of phosphoric acid, 25 pounds of potash, and 30 pounds of nitrogen; in eating the produce of an acre of potash-dosed land, he would deposit in his stomach 18 pounds of phosphoric acid, 75 pounds of potash, and 50 pounds of nitrogen; while in consuming the 3 tons

produced by the potash-phosphate-nitrogenated field he would have placed at the disposal of his alimentary system some 30 pounds of phosphoric acid, 145 pounds of potash, and 108 pounds of nitrogen contained in that "very coarse, stemmy hay." "The general result has been," says Sir J. Henry Gilbert in his last annual report (1897), "to show that if artificial manures are largely or mainly relied upon certain descriptions of herbage will be unduly forced at the expense of others, and also the character of development of the plants will be materially affected. In order to maintain a due admixture of herbage on grass land mown for hay, farmyard or stable dung should be liberally applied; and it is also conducive to the same end to consume the second crop on the land with cake or corn. The more a good condition of the herbage is induced and maintained by such means, the more safely may some increased luxuriance, and therefore increased produce, be obtained by the judicious use of artificial manures. Provided dung be liberally used, it will not as a rule be necessary to apply potash artificially; but phosphates may be used advantageously in the form of basic (blast furnace?) slag and a nitrogenous manure in the form of nitrate of soda, which, however, should seldom be used at the rate of more than 1 hundredweight or at most 1½ hundredweights per acre." "Away from the Alpine pastures the blood of our stock can never be long maintained by foreign breeders," says the Swiss breeder, Wattenwyl. Let us pass to the experiments in the Broadwalk field (see map) on wheat.

For more than fifty years in succession wheat has been grown in the Broadwalk Field without manure, with farmyard manure, with various artificial manures. The period of the test is truly long and the results are surprising. Wheat may be grown for many years in succession on ordinary arable land (a little over an acre in all) without manure, so as to yield "nearly 13 bushels to the acre, or more than the average of the whole of the United States of America, including their rich prairie lands." But this statement must be accepted with caution. In the first place, the land was "kept clean," a very important consideration indeed; and in the second place, the climate of England may be a "wheat" climate, while the climate of the United States may be a "corn" climate. In the rice region of China wheat does not yield as heavily as in the north, where its culture is characteristic. Above the Yangtse Kiang, roughly speaking, it is not uncommon to get 64 bushels of wheat from an acre, below not more than 32 bushels.[1] But the Broadwalk field shows still other results. "Unlike leguminous crops, such as beans and clover, wheat may be successfully grown for many years in succession on ordinary arable land, provided suitable manures be applied and the land be kept clean." But mineral manures (phosphates, potash, etc.) alone will not do it, as Messrs. Liebig and Ville contended, nor nitrogenous manures alone, though they are more valuable than mineral manures alone; by combining them, however, a very much increased yield was given. In one case the product yielded by mixed mineral and nitrogenous manures was more than that by the annual application of farmyard manure of 14 tons to the acre. The inquiry naturally suggests itself, Was Liebig correct in speaking of the farmer who was to contract to supply to nature so many pounds of potash, so many of soluble phosphates, and so on, if she would promise to repay him usurious interest for his carting of foreign minerals upon his soil? As far as the exhaustion of unmanured soil goes, perhaps he was. It is estimated at Rothamsted that in the forty years elapsing from 1852 to 1891 there was an average reduction of the yield of a half an acre plot equal to one-

[1] The language used by M. Simon, in his La Cité Chinoise, p. 367, is this: Two or three days after the disposal of the fourth crop by turning it under a second working of the soil was made and then the fifth crop was planted in. This consisted of planting 7 meous (meou = a sixth of an acre) in wheat. Dans la région du riz le blé ne rend pas autant que dans la région plus septentrionale. Là il n'est pas rare qu'il donne 300 kilog. par meou, et même plus. Ici il ne rend que 150 kilog.

sixth of a bushel or to one-third of a bushel an acre, paying no attention to the seasons. Always referring to the full table as given in the annual reports of the Rothamsted station, let us venture to pick out four lines of its figures, not for the purpose of accurate study of its contents, but merely as an inducement to study them.

Produce on the basis of one acre.

Plots containing—	Dressed grain.									Total straw (in hundredweights).				
	Quantity (in bushels).					Weight per bushel.								
	Averages.			Year 1895.	Year 1896.	Averages.			Year 1895.	Year 1896.	Averages.			Year 1895.	Year 1896.
	23 years, 1852-73.	22 years, 1874-95.	44 years, 1852-95.			23 years, 1852-73.	22 years, 1874-95.	44 years, 1852-95.			23 years, 1852-73.	22 years, 1874-95.	44 years, 1852-95.		
						Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*					
Unmanured:															
Half acre	14¼	11¼	12¾	10	16½	57¼	59½	58¼	62¼	61½	12¾	8¼	10½	6½	11¾
One-sixth acre	14¼	13½	13¾	12½	14	57¾	58¾	58¼	63½	61½	13½	10	11½	9½	9¾
Farmyard manure:															
Three-tenths acre	35½	34¾	35	43½	44	60	60½	60¾	63½	64	33½	32	32¾	31½	44¾
Mixed mineral manures: *a*															
Half acre	37¾	35½	36½	40	44½	59	60½	59¾	63½	64½	40¼	29½	40¼	30	45½

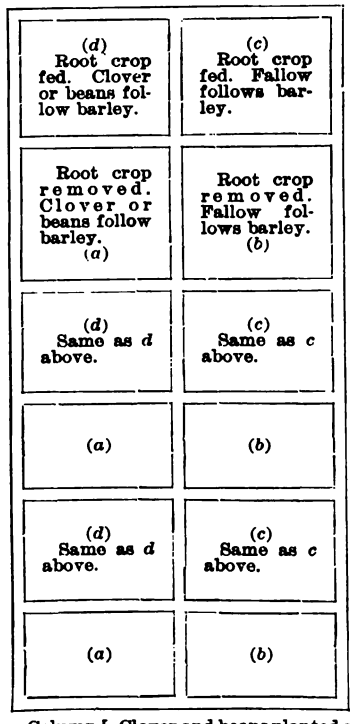
a 200 pounds (per acre) sulphate potash, 100 pounds sulphate soda, 100 pounds sulphate magnesia, 3½ hundredweight superphosphate, and 100 pounds muriate of ammonia.

In passing to consider the experiments in rotation in the Agdell field, it is pertinent to inquire what is the precise profit in growing straw and light wheat with mixed mineral manures.

There was a time when the panacea offered by science to agricultural distress was rotation in crops. It rested the land, it was said. There should be no more valuable contribution to agricultural practice than to ascertain the relative merits of the two or more fold course of rotation in keeping the land in good heart. At Rothamsted the four-course rotation was chosen—turnips, barley, beans (or fallow), and wheat—for the test which began in 1848. The results are important. They show that wheat, the staff of human life, possesses extraordinary agricultural vitality, but that root crops are a highly artificial product, possessing no agricultural stamina whatever, and will quickly revert to their lean and fibrous condition in nature if the soil in which they are grown is not constantly dosed with drugs or manure.

The Swedish turnips commenced the course on three plats, each of an acre; one constantly left unmanured, another treated to superphosphate of lime, the third treated with complex mineral and nitrogenous manures. The three plats were each divided into two, and upon one half the turnips were either fed to sheep or cut up and plowed under. A leguminous crop was sown upon each of these halves, but the other half was put to fallow. As this is somewhat confusing, the diagram is introduced. Thus, in the lowest rectangle *a* no manure was given to the plants, the root crop and foliage were carted away, and after barley, the second crop in each course of rotation, were planted beans or clover. On the other hand, in rectangle *b* exactly the same things were done, except that instead of planting beans or clover after barley, the plat was fallowed. But in rectangle *c* the first rotation crop (i. e., turnips) was fed upon the ground or cut up and plowed under, and the fallow followed the barley, while in rectangle *d* the root crop was fed as in *c*, but barley was followed by beans or clover. An analysis of

the results of the four unmanured rectangles is put into the form given in the foot note.[1] But far more interesting are the comments of Sir John Gilbert: "When various root crops are grown year after year on the same land, without manure, they soon revert to the uncultivated condition. In fact, without manure, the produce of roots was as poor in a four-course rotation as when grown year after year on the same soil." In regard to barley, it may be said that "both without manure and with mineral manure alone there was a larger yield of it in rotation than in continuous growth, but with mixed mineral and nitrogenous manure there was more produce when the crop was grown year after year on the same soil." As to the effect on the rotation of the clover and beans, it is said that "under equal conditions as to manuring the leguminous crops, especially the clover, bring much more nitrogen into the course than any of the other crops, but the amount of nitrogen so brought into the rotation is much greater under the influence of mineral manures, especially the mixed mineral and nitrogenous manures, than without manure. For the successful growth of leguminous crops, however, a liberal supply available, of, especially, potash and lime, is essential. Judging from comparable cases, the amount of nitrogen accumulated by the leguminous crops is much greater when they are grown in rotation—that is, when grown every once in a while—than when grown on the same land year after year. With fallow, instead of a leguminous crop, there is very much less nitrogen yielded in the rotation, and more liability to loss of it by drainage." As to wheat, "there was very much more produced both without manure and with mineral manure, and considera-



Column I. Clover and beans planted after barley. Column II. Fallowed after barley. Each rectangle containing one-fourth of an acre. (In the diagram all the plats are not but must be considered as equal.)

[1] *Results of forty-eight years' four-course rotation, land unmanured, on basis of 1 acre.*

Crop.	Rectangle *a*, one-fourth of an acre.		Rectangle *b*, one-fourth of an acre.		Rectangle *d*, one-fourth of an acre.		Rectangle *c*, one-fourth of an acre.	
	Grain, etc.	Straw, etc.	Grain, etc.	Straw, etc.	Grain, etc.	Straw, etc.	Grain, etc.	Straw, etc.
Average of eight rotations, 1852–1883:								
Swedish turnips	16¼ cwt.	300 lbs.	26 cwt.	325 lbs.	15½ cwt.	263 lbs.	24 cwt.	288 lbs.
Barley	32½ bush	1,971 lbs	30 bush.	1,792 lbs	28 bush.	1,758 lbs	30½ bush	1,784 lbs.
Clover (twice)	.....	2,575 lbs	Fallow	.....	.....	2,250 lbs	Fallow	.....
Beans	12½ bush	1,867 lbs			12 bush.	1,026 lbs		
Wheat	26 bush.	4,407 lbs	28½ bush	3,153 lbs	23 bush.	2,441 lbs	27½ bush	3,081 lbs.
Average of three rotations, 1884–1895:								
Swedish turnips	4¼ cwt.	188 lbs.	14½ cwt.	525 lbs.	8½ cwts.	288 lbs.	18½ cwt.	525 lbs.
Barley	13½ bush	1,214 lbs	17 bush.	1,363 lbs	14½ bush	1,201 lbs	19½ bush	1,468 lbs.
Clover (twice)	.....	1,350 lbs	Fallow	.....	.....	1,450 lbs	Fallow	.....
Beans	7 bush.	603 lbs.			8½ bush.	633 lbs.		
Wheat	26½ bush	2,057 lbs	29½ bush	2,359 lbs	25½ bush	1,927 lbs	29½ bush	2,427 lbs.

bly more with the mineral and nitrogenous manures, when it was grown in rotation than when grown continuously year in and year out on the same soil."

Taking the quantities of stuff produced by the barley and wheat in the rotation, it appears that each produced considerably more than either of the so-called restorative crops, that is, the roots, or the beans, or clover, but the supply of nitrogen within the soil placed within the reach of the wheat is increased by both the leguminous crops, but especially clover, and the fallow. Clover being thus confirmed as a restorative, or, as it was once called, an ameliorating crop, the experiments on clovers and other leguminous plants in "Hoos field" and "Geescroft field" require attention.

The experiments at Rothamsted upon clover are far from conclusive. Flower-pot experiments, and a patch of garden soil tell one tale, the Hoos and Geescroft fields another. Experiments were made in Hoos field on the growth of various leguminous crops year after year on the same land with mineral, and with mineral and nitrogenous manures, commencing in 1848–49. Red clover seed was sown twelve times in twenty-nine years, and the plant failed eight times out of the last ten trials. The results showed that when red clover was thus sown frequently on the same land, there was almost uniform failure. In fact, after the first few years practically no crop was obtained. In 1878, after the cessation of the trials with red clover, various other leguminous plants of different habits of growth, and especially of different character and range of roots, were sown on the (so to speak) clover-sick land. The result was that whilst red clover, which was included in the list of the new experiments, still failed, giving an average of only 22 pounds of nitrogen per acre per annum in five years of crop over seven years, the more weakly rooted and more weakly growing white clover, which had not been grown on the land for many years, gave an average of 47 pounds in six years of crop over nine years; the more freely growing and deeper-rooting vetch, an average of 75 pounds over fourteen years; Bokhara clover, 64 pounds per annum in eleven years of crop over twelve years; and the very deeply and very powerfully rooting lucerne an average of 160 pounds of nitrogen over twelve years. Here, then, when various other leguminous plants followed on the red-clover-exhausted land, they grew luxuriantly, and yielded much larger, and in some cases very large, amounts of nitrogen. Further, the surface soils gained rather than lost nitrogen.

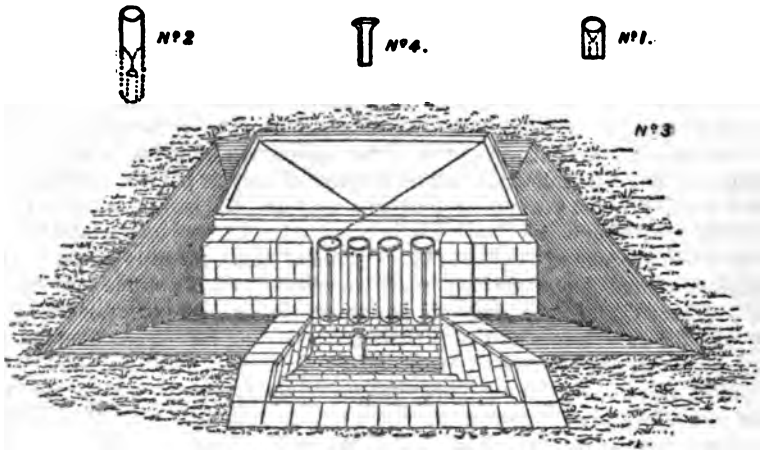
"Experiments have also been made with leguminous crops in Geescroft field. Thus, beans were grown year after year on the same land, without manure, with mineral manures, and with mineral and nitrogenous manures, commencing in 1847. The results showed considerable increase in the produce, and coincidently in the yield of nitrogen, by the use of mineral manures containing potash, though but little further increase by the addition of nitrogenous manures; notwithstanding that beans, like other leguminous crops, contain a much higher percentage of nitrogen and yield much more nitrogen per acre than grain crops. Further, by the growth of beans thus year after year on the same land, the amount of produce and the yield of nitrogen declined considerably, both being much less under all conditions of manuring in the later than in the earlier years. The results were confirmatory. As in the case of the growth of various other leguminous crops on the clover-exhausted land (in Hoos field), so now [in the Geescroft field] after the failure of the beans and decline in the yield of nitrogen in them, on sowing red clover, with its very different character and range of roots, on the bean-exhausted land, very large crops of clover, containing very large amounts of nitrogen, were obtained. Notwithstanding so much nitrogen was removed in the clover crops, the surface soil became determinably richer in nitrogen, due to accumulation of nitrogenous crop residue."

In spite of these facts, clover has been grown continuously for forty consecutive years on rich garden soil, though the plant showed "a much reduced persistence,

a considerably reduced amount of produce and of nitrogen, and with this a considerable reduction of the stock of nitrogen in the soil."

Rain and drainage.—The experiment stations of the United States, it may be supposed, have won their great achievements in the sphere of the destruction of noxious insects, the effects of animal food stuffs when taken into the stomach, and sampling fertilizers.

But they have also obtained some solid results in the line of soil physics, not to call it by its Gallic name of agrostology, a less practical question, no doubt, but still useful for the advancement of the science of agriculture, especially in the West. At Rothamsted the rainfall has been measured from the beginning, just as at Paris they have collected the rain falling every day for two hundred years.[1] But it has only been since 1877, that is, for the last twenty years, that the work has been wide enough to be of scientific value. The heads of inquiry are now "Rainfall," "Drainage," and "Loss of nitrogen per acre in drainage." The apparatus whereby this is effected is shown in the pictures.

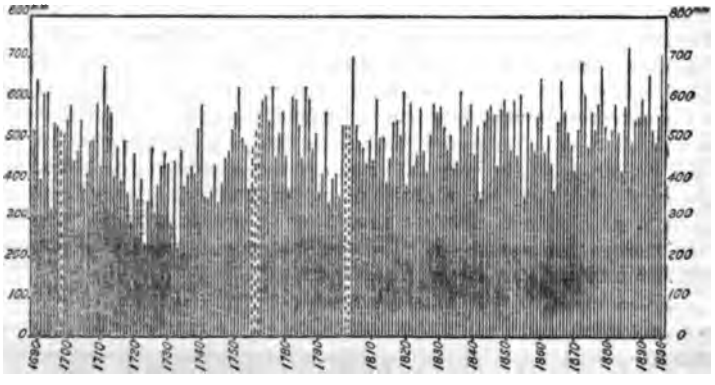


VIEW SHOWING THE COLLECTORS OF RAIN GAUGE.

No. 1.—Small funnel gauge, 5 inches diameter.
No. 2.—Small funnel gauge, 8 inches diameter.
No. 3.—Large gauge—
Size—7 feet 3.12 inches × 6 feet.
Area—One-thousandth of an acre.
4 collectors, each holding rain = 0.500 inch.
Gauge tubes graduated to 0.002 inch.

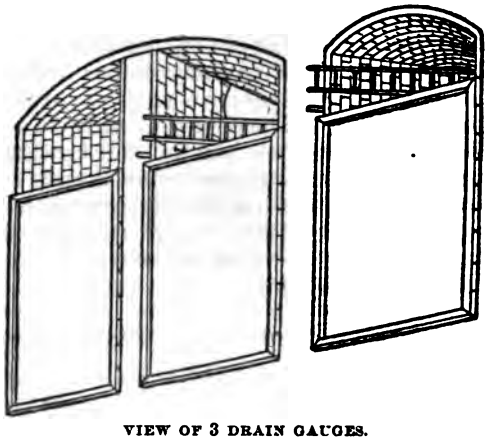
No. 3.—Large gauge—Continued.
Overflow tank to hold rain = 2.000 inches.
Small cylinder, tube graduated to 0.001 inch. (For quantities less than 0.05 inch.)
No. 4.—Stand with level marble top for measuring.

[1] Rainfall at the observatory at Paris since 1689 in millimeters (1 mm. = nearly one twenty-fifth inch).



The drainage of unmanured and uncropped soil in its natural state of consolidation has been the matter of investigation.

"The figures show that over the nineteen harvest years, 1877–78 to 1895–96, there



VIEW OF 3 DRAIN GAUGES.

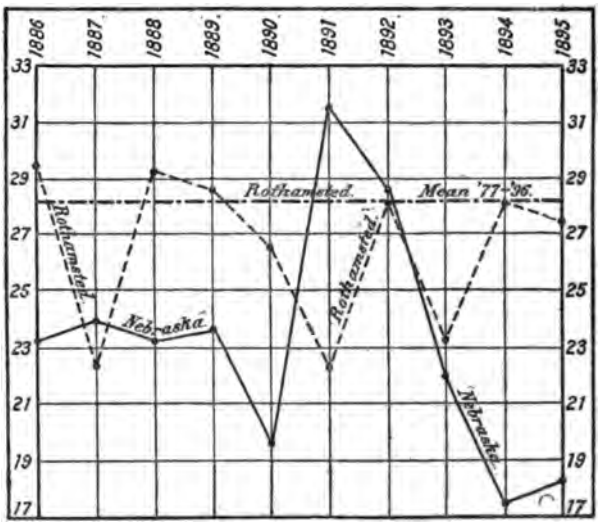
Each 7 feet 3.12 inches × 3 feet = $\frac{1}{1000}$th acre area:
Respectively 20, 40, and 60 inches depth of soil.

2 collectors, each holding drainage = 0.500 inch.
Gauge tubes graduated to 0.002 inch.
Overflow tank to hold drainage = 2.000 inches.

was an average annual loss of nitrogen in the drainage of 34.99 pounds through 20 inches, 30.58 pounds through 40 inches, and 33.47 pounds through 60 inches depth of soil; or, taking the average of the three gauges, of about 33 pounds per

Diagram showing comparatively the rainfall at Rothamsted and in Nebraska.

[Compiled from Rothamsted and United States Weather Bureau reports.]



NOTE.—The average at Rothamsted for 1851–1870 was 23.80 inches. The rain was collected in a "5-inch funnel." The 0.001-acre gauge shows that the funnel gauge falls short about 1 inch. The year 1891 in Nebraska appears to have been exceptionally moist and favorable to crops, while 1894 seems to have been greatly deficient in rain and yield, according to the weekly statements of the weather service in "Departures from normal temperatures and rainfall in Nebraska," 1896.

acre per annum reckoned as nitrogen, corresponding to an average annual loss of nearly 2 hundredweights of nitrate of soda.

"With reference to the large amounts of loss of nitrogen by drainage thus indicated, it is to be borne in mind that probably not more than an average of about 5 pounds would be contributed annually per acre from the atmosphere in rain and the minor aqueous deposits, exclusive of any condensation by the soil. Moreover, the soil of the drain gauges had been unmanured since 1868; but, being exposed to the access of air from below as well as from above, the oxidation of the nitrogenous matters of the soil and subsoil may be more active than in similar soil in its natural [not underdrained] condition. On the other hand, the soil was without any vegetation to arrest the nitric acid formed, whilst in some cases of fallow land which had been manured and cropped in the ordinary course, and which would therefore be in a much higher 'condition' than the soil of the drain gauges, as much or even more nitrogen as nitric acid has been found to be present in the autumn to the depth of 18 or 27 inches."

THE LIFE-PROCESS AND INSTINCT OF THE PLANT.

In the former part of these remarks we have spoken first of hypothesis and then of observational experimentation in agriculture. It is now proposed to speak of the agricultural plant, a subject which in agricultural courses of instruction is considered to be "botany." The knowledge of the origin of cultivated plants is interesting to agriculturists, to botanists, and even to historians and philosophers concerned with the dawnings of civilization, says Mr. de Candolle, and for such of them as desire to consult the literary record of agricultural vegetation that author's work is by far the best compilation. For those who seek to know why men have cabbages to eat instead of lichens and sweet potatoes instead of the swelled roots of some other form of the morning glory family the works of Mr. Darwin and others on the behavior of plants under domestication are necessary. Why the native Hindoo soldiers at the siege of Arcot could truthfully say to Clive that the boiled rice should be given to the English soldier, as the water in which it had been boiled would be nourishment in their stomachs,[1] can not be spoken of in this connection, for we are here concerned with the vital principle of the plant and its ability to care for itself, not with the digestive apparatus of the animal that eats the plant.

The plant sprouts, feeds itself from the air, and reproduces itself in growing, but all these activities are not primarily the work of the plant, but in particular of certain of its units. It is warrantable to say that the vitality of a plant is the sum of the vitality of its cells, modified, indeed, by the coordination of those cells to obtain nourishment freely and abundantly and the ability to use the energy elaborated from the nourishment thus obtained. Three theories of cell formation confront, not to say dismay, the inquirer. One turns upon the survival of the fittest, and each "physiological cell" or unit of the individual has the power of arranging itself into a special form (Spencer[2]) or to say the same thing differ-

[1] Macaulay's Life of Clive.

[2] In his argument in Principles of Biology (vol. 1, p. 182) Mr. Spencer makes these observations: "It can not be that the atoms of albumen or fibrin or gelatine or the hypothetical protein substance—the chemical units, so to speak—possess the power of arranging themselves into a special form, which I shall call polarity. Nor can such power reside in the mere cell form or morphological units, since the formation of a cell is to some extent a manifestation of the power. If, then, this organic power of arrangement into a special form is possessed neither by the chemical units nor the morphological units, we must conceive it to be possessed by certain intermediate units, which we may term physiological units." Again, in connection with heredity, he says: "Throughout the process of evolution two kind of units, mainly agreeing in the form in which they intend to build themselves, but having minor differences, work in unison to produce an organism of the species from which they are derived, but work in antagonism to produce copies *of their respective parents.*"

ently there are "gemmules" in each cell which flow to the sexual parts of the individual and strive concurrently, but perhaps not always harmoniously, to concentrate their energies to bring about the highest development of the individual's offspring (Darwin[1]). The second theory is based on logic, or "the formal laws of thought," and not on evolution in the Darwinian sense of that term, for it contends that if life was called from the dust in some remote past, as must have been the case on the Darwinian hypothesis, it may be again and again spontaneously created fiatlike and thus de novo form a new species of living organisms.[2] The third theory seems to falter between the facts of the first theory and the logic of the second, for it assumes a "germ plasm,"[3] which can neither be spontaneously created nor acquire new characteristics.

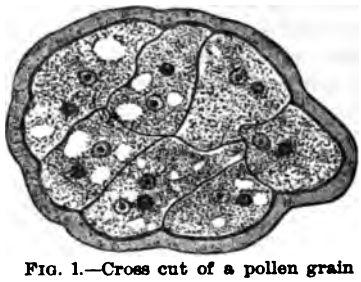


FIG. 1.—Cross cut of a pollen grain sac. The blank spaces are vacuoles. The large black dots are "vegetative" nuclei, the ringed dots are "generative" nuclei. (Highly magnified.)

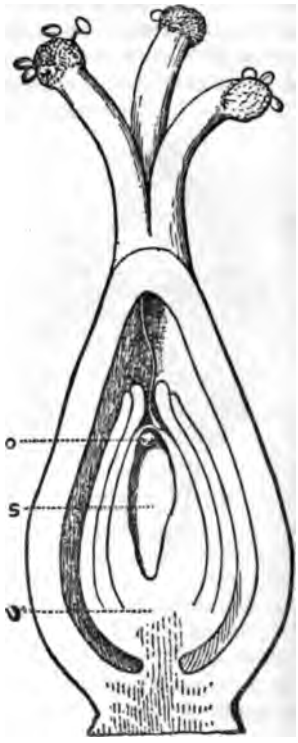


FIG. 2.—Diagram (after Gray) of a magnified pistil of buckwheat, which has an orthotropous (upright) ovule, *o*, oösphere, *s*, embryo sac, *v*, ovule. The pollen is represented as little balls on the surface of the stigma and one of them has sent down its tube through the style into the ovary. This tube has penetrated the mouth of the ovule until it lies upon the embryo sac near the oösphere.

THE DEVELOPMENT OF THE MALE CELL IN THE OVIARY.

Such are the hypotheses concerning the modus operandi by which new beings are created. The physical or visual facts in the case may be exposed as follows:

Let it be supposed that the dust called pollen has been emitted by the male organ of a flower, that is, by an anther, and a grain of that dust has been caught by the appropriate female organ, called the stigma, of a distant plant. Let it be further supposed that the pollen grain is roundish, like the spores of *Aspergillus niger*, mentioned on page 933. In a few minutes or hours that grain, being nourished by the sticky, viscid matter of the stigma, sprouts not upward into the air, like the Aspergillus, but downward away from the open air, like an anærobe, as shown in the illustration in the margin. The pollen is alive, for it has pushed a tube down into the ovary. The stigma is alive also, for it has secreted the juices that have nourished the pollen grain and helped along its penetration into the interior of the "pistil." We are, then, to look upon this growth of the pollen

[1] It is universally admitted that the cells or units of the body increase by self-division. But besides this means of increase I assume that the units throw off minute granules, which are dispersed throughout the whole system; that these, when supplied with proper nourishment, multiply by self-division and are ultimately developed into units like those from which they were originally derived. These granules may be called gemmules, and are collected from all parts of the system to constitute the sexual elements, and their development in the next generation forms a new being. They are not the physiological units of Mr. Herbert Spencer. This provisional hypothesis I call pangenesis [Animals and Plants Under Domestication, pp. 369–370].

[2] Dr. C. Bastian's Beginnings of Life, and St. George Mivart.

[3] The Germ Plasm, a Theory of Heredity, by August Weismann.

grain as we have looked upon that of the Aspergillus spore, for the juices of the stigma are the "plasma" of the pollen. Thus antecedent to the fecundation there is a microbous growth, which sets up interior disarrangements, as will be shown, which eventually result after fecundation in the formation of a miniature plant. The strange thing about the matter is that the little plant may, when grown up, turn out to be greatly different from either the plant from which the pollen drifted or from the plant which caught and nourished the pollen on its stigma and then received the "being" of the pollen in its ovary.

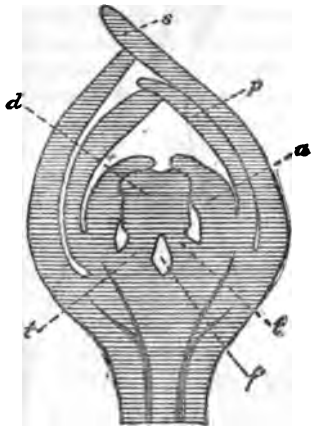


FIG. 5.

FIG. 3.

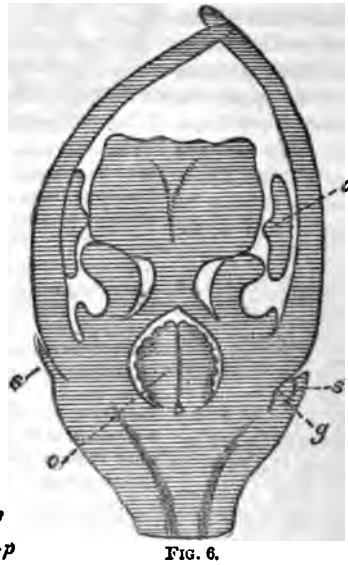


FIG. 6.

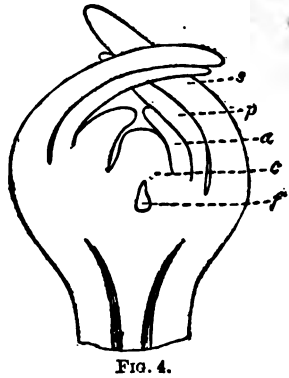


FIG. 4.

FIG. 3.—*s*, sepals, which before the bloom covers colored parts of flower; *n*, undefined parts.
FIG. 4.—Fifth stage: *s*, sepals; *p*, petals; *a*, anthers; *c*, carpel or pod; *f*, space between carpels.
FIG. 5.—Sixth stage: Disk of stigma at *d*; *f*, space between carpels; and *t*, the style which surrounds space and carries up the stigma.
FIG. 6.—Flower in bud, showing at *o* the two ovule-bearing bodies (carpellaries) back to back.

Having thus remarked the manner in which the pollen seeks the egg for the purpose of fertilizing it, it yet remains to show the physical preparation in the ovary for the event.

PREPARATION FOR FECUNDATION.

In showing how the ovule or mother part of the plant prepares for the act of impregnation two things require particular attention. These are the development of the mother cell and the embryo sac, or embryonic egg proper, which transforms the contents of the sac into a miniature plant surrounded by food—that is, into a seed. But first, a moment's consideration of the development of the flower. For

this let us take a member of the milkweed family,[1] the shallow-wort, vince toxicum. The flower begins somewhat as shown in fig. 3. The undefined part continues to develop in the horn-like way in which the sepals started out, and at a "fifth stage" the flower shows the space that nature leaves for an interior growth, marked *f* in fig. 4. In the sixth stage all the future exterior or atmospheric parts of the flower have been formed, and for the present purpose the other "stage" of growth in fig. 6 will finish this introduction to the genesis of an embryo sac and its invaluable contents. We are now to consider what takes place in one of those little ovules of which two sets are shown back to back, using, however, another plant.

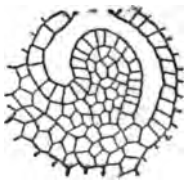


Fig 7.

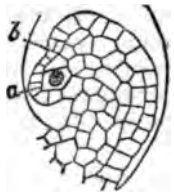


Fig. 8.

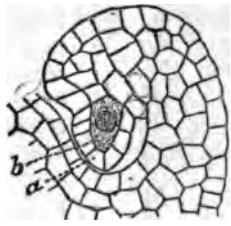


Fig. 9.

Beginning of an "Anatropic" ovule (fig. 7); appearance of a "mother cell" as the ovule turns upon itself (fig. 8); an enlarged view of same at later stage (fig. 9). [All after Martin.]

A short time before the floral organs of the aster, a member of the great compositae family, attain their maximum length there appears at the bottom of the ovarian cavity a rounded excrescence. This is the incipient ovule, the promise of a future seed.[2] At first the ovule is a mere mass of soft cellular substance like the interior of any young portion of a growing stem, but as it curves around and becomes turned up side down, as shown in the illustration of an "anatropic" ovule given above, a new kind of cell appears at the turning end of the ovule, which, surrounded by a single layer of ordinary cells, thrusts itself out from the main body. This is called the "mother cell" (figs. 8 and 9). The proceedings of

FIG. 10.—Exterior appearance during formation of an ovule of *Magnolia umbrella* during three weeks, about [after Gray and Maout et Decaisne's Traité générale de botanique].

this cell in expectation of the arrival of the pollen, as shown in Professor Gray's picture of buckwheat (fig. 2), will now require attention.

There is a question as to whether the wall or inclosure of the mother cell is immediately turned into an embryo sac or whether the sac is a product of the operations of its very peculiar contents. In the aster the mother cell proceeds to divide itself into three other cells upward and back of itself, then to reabsorb those three above it, and finally to consume the row of cells which cover it as it juts out from the body of the ovule like a peninsula, as shown at an early stage at *b* in

[1] Following Dr. G. Chauveaud, junior professor (agrégé) in the University of France, the work being done in the laboratory of botany of the Museum of Natural History at Paris (Ph. Van Teighem, director), in his article "Reproduction chez les Dompte Venin."

[2] Development of Flower and Ovule in Aster and Solidago, an interesting account of a series of independent researches by Mr. G. W. Martin, professor in biology, in Indianapolis, Ind.

fig. 9. Thus it finally has the appearance of the illustration in the margin. It is then completely victorious. It has demolished everything within reach save its foothold or base of supplies. The embryo sac is complete. Quite differently in the shallowwort (vincetoxicum) is this result effected. Like the aster's, the shallowwort's ovule puts forth a mother cell. This mother cell likewise increases in size, but at no moment of its existence is there the least trace of division by new cell walls, and the cell, at first like its neighbors, is enlarged and directly formed into an embryo sac. This direct transformation is very unusual for a plant having two seed leaves, though among the lilies, the tulips, and frittillarias, which have but one, the fact is not rare.[1] It is, however, by the lilies, which Mr. Grant White claims represent the immense threefold type of flowering plants,[2] that it is intended to show what the mother cell does when it is transformed into the embryo sac.

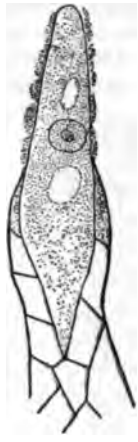


FIG. 11.—Consumption of the outside or cap layer of cells by the mother cell and completion of the embryo sac in the aster plant.

When the mother cell of the Turk's cap lily (*Lilium martagon*) has gathered headway, there may be noticed, in addition to the usual network structure, certain threads or streamers, which however vary in their lay with regard to different mother nuclei of the same stage of development. Some, as in fig. 1 of Plate I, form a sort of spherical envelope around the nucleus; others, as in fig. 3, stand out from it like bristles from a globular brush. In other cases the nucleus presents the appearance of fig. 2. But later on these differences vanish and the contents of the sac outside of the nucleus and the contents of the nucleus are mixed in the way shown in fig. 4. It will be seen how the bundles converge in fig. 4 without any apparent regularity. In fig. 5 this is changed and a sphere is formed having the contents of the mother nucleus at the equator. In fig. 6 this equator is separated and two new or "daughter" nuclei are formed. These also separate and form four "granddaughter" nuclei, so to speak, and these also separate and form eight "granddaughters," four of which are in the upper end and four in the lower end of the embryo sac, which has greatly elongated. In the case of the aster one of the upper four moves down to the middle of the sac, and then one of the lower four moves up, both consolidating into one (fig. 12). This leaves a trio of cells as shown in Plate II (fig. A). Fig. B explains the visual process of the transformation of the cell into an egg that will develop into a seed as shown in the footnote.[3]

FIG. 12.

[1] Dr. G. Chauveaud in the Reproduction chez les Dompte Venin, quoting Treub and Mellink and Guignard.

[2] Flowers and their Pedigrees; the origin of wheat, p. 136.

[3] Seed in its development after fecundation of ovule of two different species—

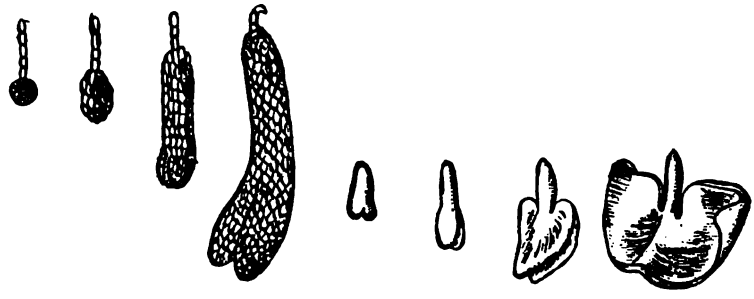
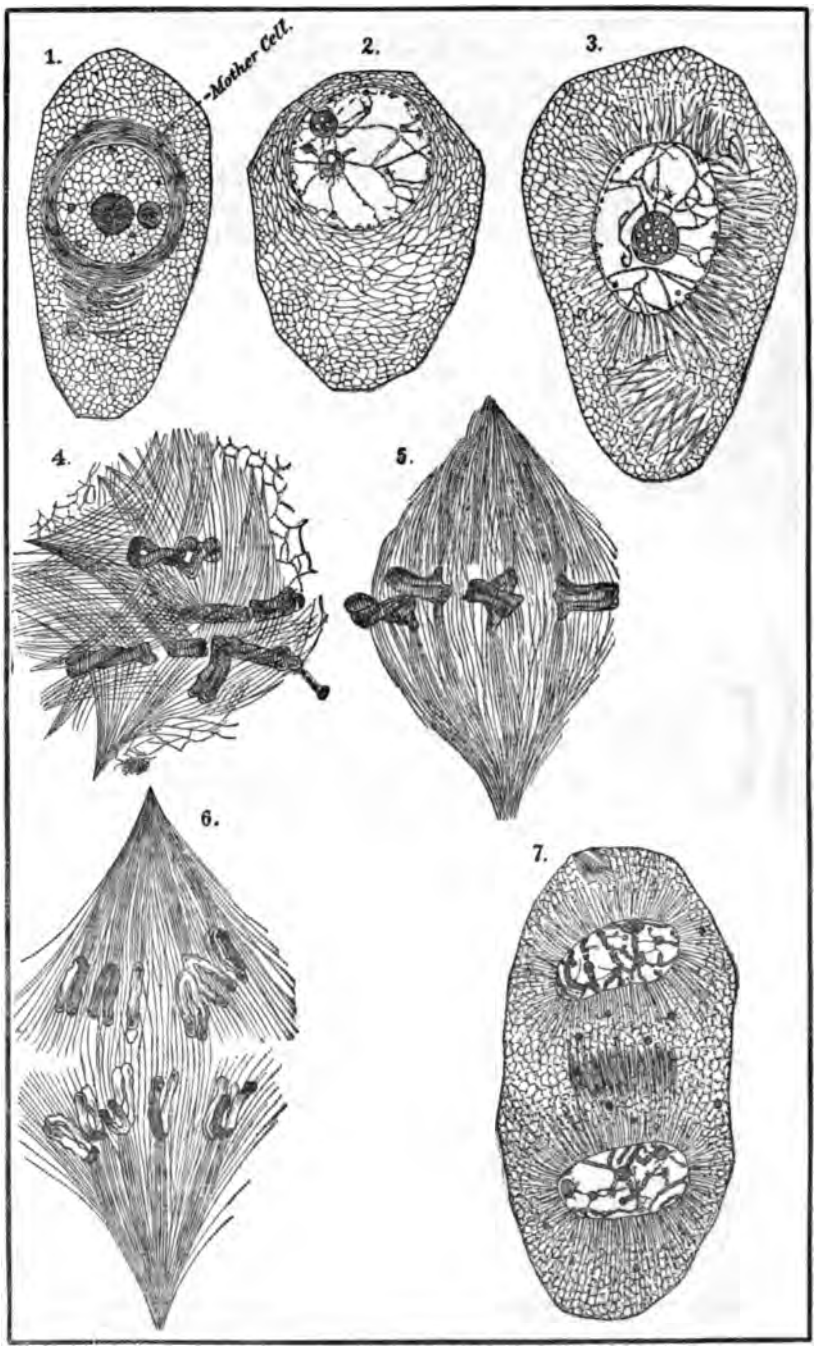
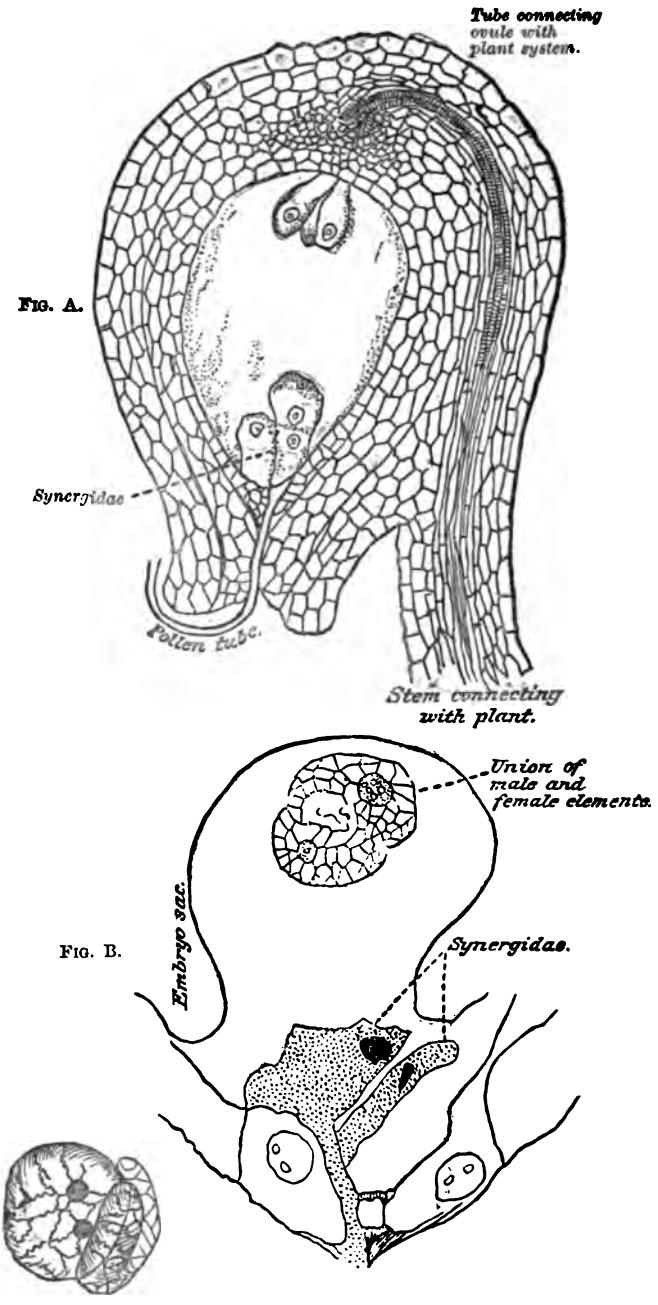


PLATE I.



The development of the mother nucleus of the Turk's Cap Lily (*Lilium martagon*). Fig. 8, White Lily (*Lilium candidum*). See text. [After Mottier, of the University of Indiana, while studying at the University of Bonn on leave of absence.]

PLATE II.



The act of impregnation in vegetable physiology.—A an anatropous or suspended ovu showing method of penetration of male element (pollen tube). The three upper cells are call antipodal cells; the three lower are called the egg apparatus—the two lower being the "syn gidæ," the third lower, the oösphere until fertilized as in fig. B, when it becomes the oöspo Fig. B shows the female element absorbing the male. A view of the case where this absorpti or coalescence does not happen is shown in the case of *Lilium martagon*. [The lower figures a *after Mottier*, the upper is used by Professor Mussat of the Grignon Agricultural School *France.]*

THE VEGETABLE CELL.

The first material fact in the vitality of a plant considered apart from earth and air is the cell; the next, the circulation of the sap. The one is dead matter vitalized, the other disobeys the law of gravitation. Both being enigmas, a brief description of them will suffice. The vegetable cell is distinctly, though not quite universally, distinguished from the animal cell by two chemical features. Its cell wall is composed of cellulose, and it contains chlorophyll. Some animals, of which there seem to have been myriads during the period of geological time called the Paleozoic or old age of the world, possess a substance resembling cellulose, which has been called tunicine from its being found only in the mantle which covers the

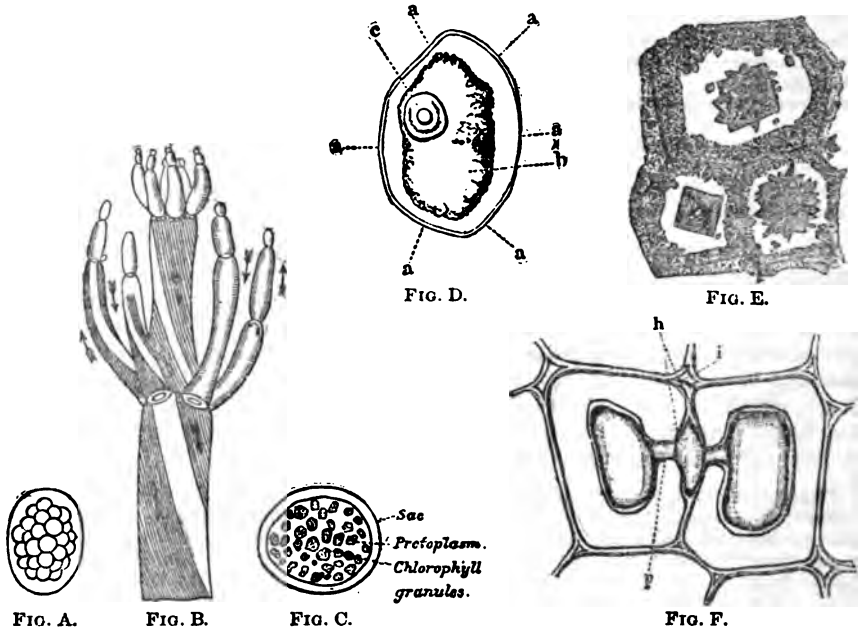


FIG. A. FIG. B. FIG. C. FIG. D. FIG. E. FIG. F.

FIG. A.—Torula cell, showing the protoplasm broken up into a mass of cells, each capable of becoming a new plant. (Diagrammatic sketch.)

FIG. B.—A small portion of the chara magnified to show intracellular circulation. The arrows mark the direction of the course of the protoplasm in the cells. The clear places are the parts where there is no movement. (Diagrammatic sketch.) (Encyclopedia Brittanica, Vol. IV, p. 84.)

FIG. C.—Cell of Protococcus. (Diagrammatic sketch.)

FIG. D.—An alcoholized cell showing protoplasm separated from cell wall (a) and formed into wrinkled sac.

FIG. E.—Crystal cell.

FIG. F.—Formation of a path between two cells.

body of oysters and other mollusks. Some plants which it requires a microscope to see and a zoologist to claim for an animal have chlorophyll in their cells. Fungi and other "plants" have none. But let us restate these conceptions in another way.

When yeast is filtered, it is separated into a solid and a liquid portion. The latter, when examined with a microscope, will be found to consist of small sphere-like bodies 0.025 to 0.007 of an inch in diameter, each an independent, living organism, called a torula, floating in a liquid, from which it imbibes its nourishment, called a plasma. Again, if the green scum which is often observed collecting on

the roofs of houses and other such situations be mixed with water and examined under a microscope, it will be found to consist, mainly, of small bodies between 0.035 and 0.0001 of an inch in diameter. Let us compare these two "microbes," for both are plants, the first being a fungi, the second a chlorophyll vegetable.

Torula (a "*ferment*" or "*fungus*").[1]	*Protococcus* (a "*mold*" or "*single-celled plant*").[1]
A cell consisting of—	A cell consisting of—
1. An outside transparent sac containing—	1. An outside transparent sac containing—
2. A semifluid matter resembling ground glass (protoplasm) with—	2. A semifluid mass (protoplasm) tinted red or green (according as the light is transmitted or reflected)[2] by chlorophyll.
3. Sometimes a small space inside more clear than the rest.	
The sac or cell wall is composed of cellulose, water, and mineral salts.	The sac consists of cellulose, water, and mineral salts.
The protoplasm consists of—	The protoplasm consists of—
Albuminous compounds.	Albumen.
Fats.	Water.
Mineral salts (potassium).	Fat.
Water.	Mineral salts.
Food medium of the Torula see (p. 933 for Aspergillus).	Food medium of Protococcus, ordinary dampness.
Sulphuric acid and iodine will not color the sac wall blue, as its cellulose is impure.	Sulphuric acid will color the sac wall.

Let us now speak of a living cell, as we have of a plant which grows, feeds, respires, and reproduces itself. We shall find a cell doing the same things. In short, the plant is only a form of government of a society of cells whereby the whole community strengthen the Protococcus-like individual and produce vegetative effects of a far higher order. Yet while the whole body continues to live the individuals are ceaselessly dying and reproducing. This balancing of life and death, which the cell system we call a plant masks, is related by Professor Bonnier in the inaugural lecture of his course on Vegetable Biology at the Sorbonne in 1887, following Hanstein, Loye,[3] and perhaps others.

This young cell, said he, pointing to an illustration, is wholly formed of thick (dense) protoplasm, which is marked off by thin partitions, while in the middle is the nucleus (cf. page 965, fig. 1, showing seven such cells in a pollen sac). Here is another illustration. The cell is now a little older. It has changed its form. Little drops of liquid are interspersed through the protoplasm. In this other illustration the structure is still further modified, the nucleus has now spread until it has almost reached the walls of the sac, and the protoplasm is only a thin layer between the sac wall and the nucleus. Here, finally, in the illustration I now show you there is neither protoplasm nor nucleus. (See Figure A of Torula above.) Those little partitions we found in the first illustration have been incubated, as it were, within the wall or sac of that mother cell. They have reached their utmost development, and the mother cell is dead. Thus a cell is born, grows, changes its form, reproduces itself, and dies. Yet this is not the only way, nor is it the most usual way of cell multiplication.[4] A cell may divide itself by an hour-glass constriction the protoplasm separates itself into two parts. But does the cell feed and respire? By methods both delicate and precise, it has been determined that the protoplasm takes in oxygen and breaths out carbonic acid, therefore it breathes and nourishes itself. When the cell has chlorophyll within its protoplasm it has the additional function in a strong light of breaking up the carbonic acid of the air and assimilating the carbon.[5]

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[1] Summarized from Mr. T. C. MacGurley's General Biology.

[2] Professor Bonnier in the opening lecture of his course at the Faculty of Sciences of Paris (Sorbonne) in 1887. It is said that heating will turn the red or brown to green. The red snow of the artic regions or of the Alps is due to the Protococcus nivilis.

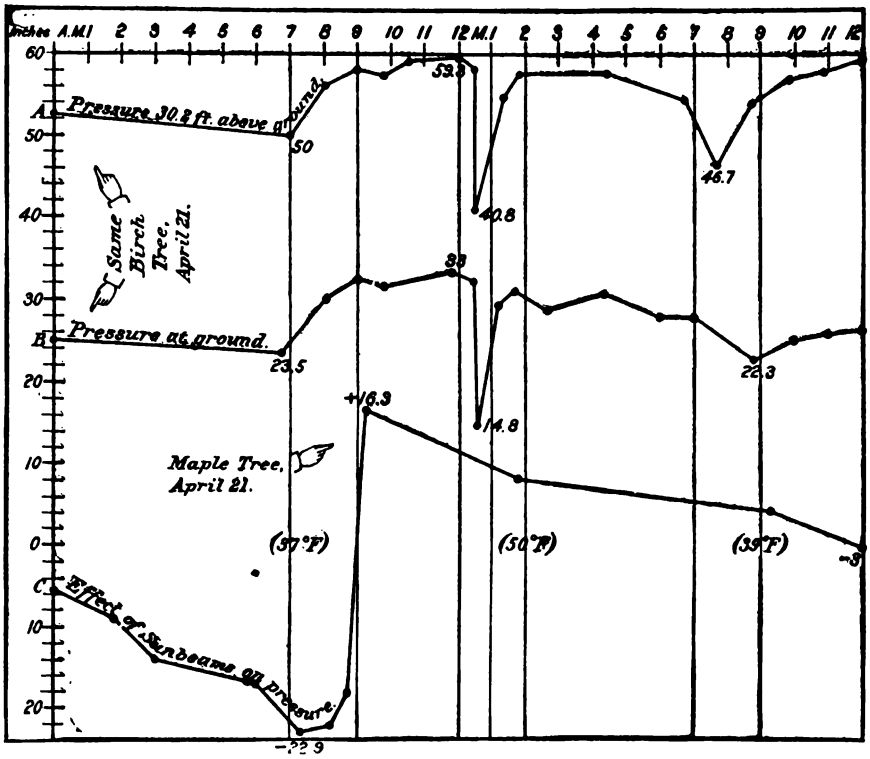
[3] Revue Scientifique, January-June, 1883. Les limites du regne animal et du regne vegetal, par P. Loye.

[4] Darwin, Plants and Animals under Domestication, vol. 2, pp. 349-399.

[5] See also for storage cells, p. 985.

VEGETABLE HYDRAULICS OR THE ASCENT OF THE SAP.

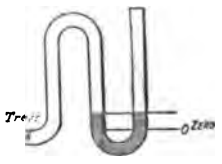
But if cells feed, as the professor at the Sorbonne tells us, how does the nourishment which comes from the ground reach them? In other words, by what charm do the cells in the uppermost branches of a towering pine call the water absorbed by the roots up to their lofty station, higher than the standpipes of our city waterworks? It has been urged that there is a pulling force caused by the evaporation of the leaves which causes the lower cells to hand up their water to the cells above them, while to account for the fact that if in summer a grapevine be cut off near the ground and a hollow tube fitted over the stump the sap will flow far up into the tube, another force—a pushing force—is imagined. Whatever truth this theory may contain, it can not prove itself merely by its simplicity of structure.



Perhaps in no country in the world is the tapping of trees for their sap so largely and systematically carried on as in New England, where there is quite an industry in maple-sugar making, though it is believed that the wild date tree is used in somewhat the same way in the oriental countries of the Indian seas. To those dwelling in New England, therefore, the flow of sap in the maple is a matter of fact that has long affected their business interests, and it has long been known to them that sap would flow from wounds in the wood of trees in spring; that the maple tree yields a large amount of sugar, and that the quantity and quality of the flow are affected by peculiarities of the season. It is said that few species of trees bleed at any time of the year when wounded, but several in the climate of New England, between the falling of the old and the pushing of the new leaves,

yield their juices when punctured, but lose that faculty when the young leaves appear. It has also been found that the sap flows readiest when freezing nights are followed by bright and warm days. But observe the diagram on page 973. Line A shows the fluctuation of a column of a siphon mercury barometer attached to a stopcock screwed into the sap wood of a tree at the level of the ground. Line B shows the fluctuation of a similar barometer 30.2 feet above. Line C shows the effect of the sun in starting up a pressure. All these observations were taken upon the same day, April 21,[1] and may be more particularly described as follows:

Line A: Pressure indicated by a column of mercury in a siphon-like tube in which whenever the mercury was at the same level in the two arms of the lower bend the pressure was put at zero. Line B: Pressure indicated by a similar gauge 30.2 feet lower down on the same tree trunk. Line C represents another experiment on a maple tree. The drop between 12 m. and 1 p. m. in lines A and B is due to the fact that on April 21 at 12.30 p. m. a hole was bored into the tree opposite to the lower gauge at the same level. In fifteen minutes 1 pound of sap had run out and both gauges had fallen to an amount equal to 19.27 feet of water. Upon closing the hole the mercury rose in ten minutes, as shown in the diagram. A stopcock having been inserted in the hole opposite the lower gauge, it was found that it could almost instantaneously make both gauges rise or fall in unison when closed or open. On the 11th of May the sap pressure indicated the weight of a column of water 84.77 feet high. The extraordinary rise just before 9 a. m. in line C is due to "the sun having warmed the tree." The minus figures merely state that the middle tube had more mercury in it than the tube with its mouth exposed to the air. The black birch (Betula lenta) was a fine and sound forest tree 6½ feet in circumference and 70 feet high; the maple, a healthy "shade tree" 5 feet in circuit and 60 feet high.

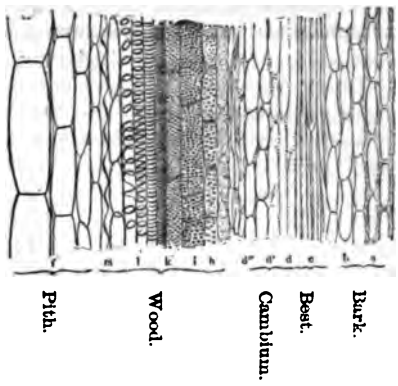


As soon as the foliage of the birch appeared the upper gauge came to an equilibrium ("zero") on May 14 and the lower on May 27. Too much stress, therefore, should not be laid upon its action, except so far as it shows the behavior of the sap on the 21st of April, 1873, as compared with a maple tree. But may it not be asked whether the tap root, for instance, of the birch is not a hydraulic ram or whether the whole tree is not a closed system of natural waterworks, a sort of vegetable artesian well, where levels go for nothing and vital forces for everything? That the maple tree should be so full of sap during the winter and should yield it so copiously during a warm day, if preceded by a freezing New England night, is another enigma. The cactus, a leafless plant of the arid region of New Mexico and Arizona, also yields a juice which is supposed to nourish the plant during the rainless portion of the year, and it may not be going too far to say that during the winter the leafless tree, like the sugar beet, perfects the juices its foliage has elaborated during the summer in order to flower and bear seed in the coming year. Fermentation has been suggested as the remoter cause of the growth of a lichen and a bean; and to it also is attributed the ripening of grape juice into wine. By analogy there would seem to be an opening for a proposition to the effect that fermentation or the ripening of the sap causes spring flowers. Be this as it may, an experiment with an annual plant shows that the expansive force of a growing fruit will lift more weight at midnight, when the foliage is exteriorly at rest, than at any other time of day.

[1] The Circulation of Sap, by Prof. W. S. Clark and the faculty of the Massachusetts Agricultural College in 1873.

VEGETABLE MECHANICS OR MOTION OF AND IN PLANTS.

On pages 928 and 930 it is shown that the leaf and the root are symmetrically arranged. The stem or wood portion of the trunk is likewise a symmetrical arrangement, as may be readily seen by the following cut:



The stem of a tree is surmounted by a bud, and the bud is but a series of expanding leaves. The movement of the stem, then, need not detain us long, for the very raison d'être of a tree trunk is to resist movement. Yet even the trunk up which the sap flows records a spiral movement. Observe the illustrations on p. 976. In the first the spiral arrangement on the twig is pronounced. The fact there shown is a branch of botany—phyllotaxy, or the rules of leaf arrangement. But it may be objected that the cherry-tree twig is not a palm which consists of a single growing bud. To such objection the "boot" of the sabal palm or palmetto will afford a ready answer, for it shows by the arrangement of the foot stalks of the decayed leaves how nature distributed those leaves so as to give them the most light.

It now remains to put in evidence the manner in which a bud is constructed and its method in extending the tree and fulfilling its purposes. In the first figure, p. 977, is shown a diagrammatic sketch of a flower-bearing bud and below it on each side two leaf buds. This diagram may be made to explain the growth of the tree yucca of the southern gulf coast, but considering the top bud alone the method of growth of the hemp agave called sisal is typified. This "succulent" after sending out its rigid century plant-like leaves for four or five years until the whole stands 4 feet or so high completely exhausts its life by throwing up a spike of bloom 12 or 15 feet, filled with branches bearing hundreds of little growing plants just like its own former but now defunct self, much to the disgust of those who in subtropical countries plant it for its tropical look and its indifference to full sunshine and absence of water.

Nor are these things all that may be advanced as testimony that the sap twines around the tree. On p. 977 are two representations, one of an alga (Riella helicophylla), the second figure of the cut, the other of the sap wood of a decaying pine tree (*Pinus palustris*) in a turpentine orchard; the sap wood seems wrapped round the heart wood like the bandages around a mummy. But it is of the leaf that it is necessary to speak.

The leaf of a plant is one of the most prodigious creations of nature. Professor Helmholtz may have said that any German oculist could make a better optical apparatus than is the human eye, but no one would ever have the impertinence to make such a remark about a leaf. They purify the atmosphere of a gas deadly to animal life and liberate one which promotes it. They are necessary to the production of grain and are themselves a food for cattle, and if the almost complete dependence of industry and transportation upon steam be considered, then in the form of coal or wood the leaf has brought about the so-called "industrial revolution; or the age that we live in."

"One of the most interesting facts with respect to the circumnutation of leaves is the periodicity of their movements, for they often, or even generally, rise a little in the evening and early part of night and sink again on the following morning. Leaves also turn at night, and the leaves of some few plants move either upward or downward when the sun shines intensely on them; but all these move-

ments," says Mr. Darwin, by whom these remarks were made, "are, we believe, of an essentially different nature." Before entering upon the separation of these classes of movements it is well to show what interpretation may be placed upon them.

People who live in houses in summer time are not apt to think how fast the earth cools off at night. Even in southern Florida in summer the cool night air is unpleasant; but when one approaches the equator or Central Africa, where in

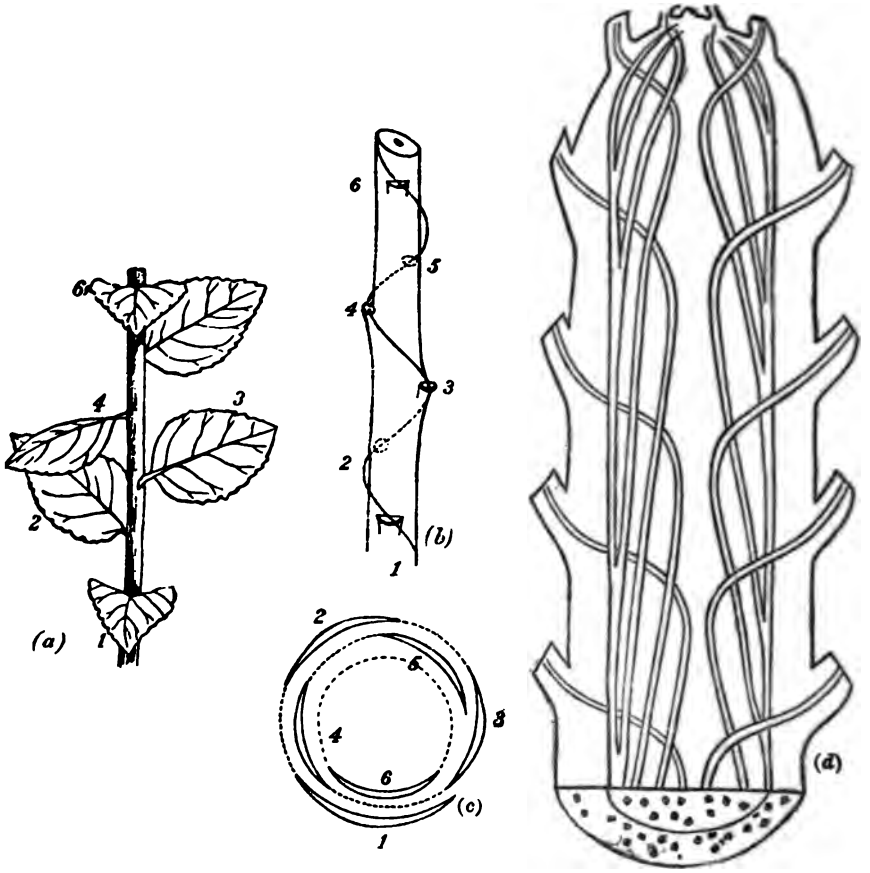


FIG. *a*.—Branch of cherry having six leaves; Fig. *b*, same defoliated, dotted lines indicating unseen part of spiral; Fig. *c*, representation of *b* as though it had been telescoped. (Figure adapted partly from Balfour and partly from Gray.)

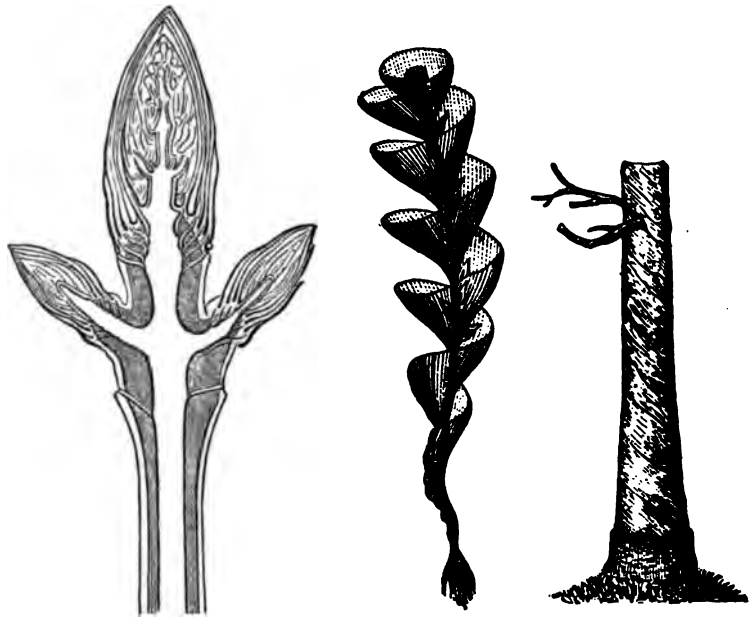
As was shown by Nägli, each thread in the leaf of the sample palm trunk type (aspidistra elatur in the diagrammatic illustration above. Fig. *d*) runs in spiral threads. He found the medium thread leading to a leaf, making 1½ revolutions in 6 internodes; in its sixth it had not, in its out course, quite reached the middle point between the center of the stem and the inner surface of the bark. (De Bary, quoted by Goodale.) (Compare Mr. Darwin's researches on circumnutation a few pages on.

daytime the thermometer is, to use Professor Drummond's expression of his feelings, "a billion centigrade," one seldom lies down in his tent with fewer than a couple of blankets and a warm quilt.[1] As broad leaves have none of these conveniences, they are obliged to fall off and perish in autumn and to protect themselves during the summer nights, when the earth radiates the heat acquired during the

[1] Drummond's Tropical Africa, p. 108.

day from the solar radiations which have passed through the atmosphere to it. The diagram given on page 978 shows how much greater the heat of the surface of the earth is than that of the air. In short, immediately the rays of the sun cease to warm the surface of the soil, the surface rapidly loses its heat to the cooler air or radiates it like a stove cools off when the fire within it has gone out, though the earth does not give back all the heat that has been shed upon it. Were that so, we would have no coal beds or forests in which are stored up some of the solar rays of former times.

"We (Mr. Darwin, and his son, Mr. Francis Darwin) exposed on two occasions during the summer to a clear sky several pinned-open leaflets of *Trifolium pratense*, which naturally rise at night, and of *Oxalis purpurea*, which naturally sink at night (plants growing out of doors), and looked at them early on several successive mornings, after they had assumed their daylight positions. The



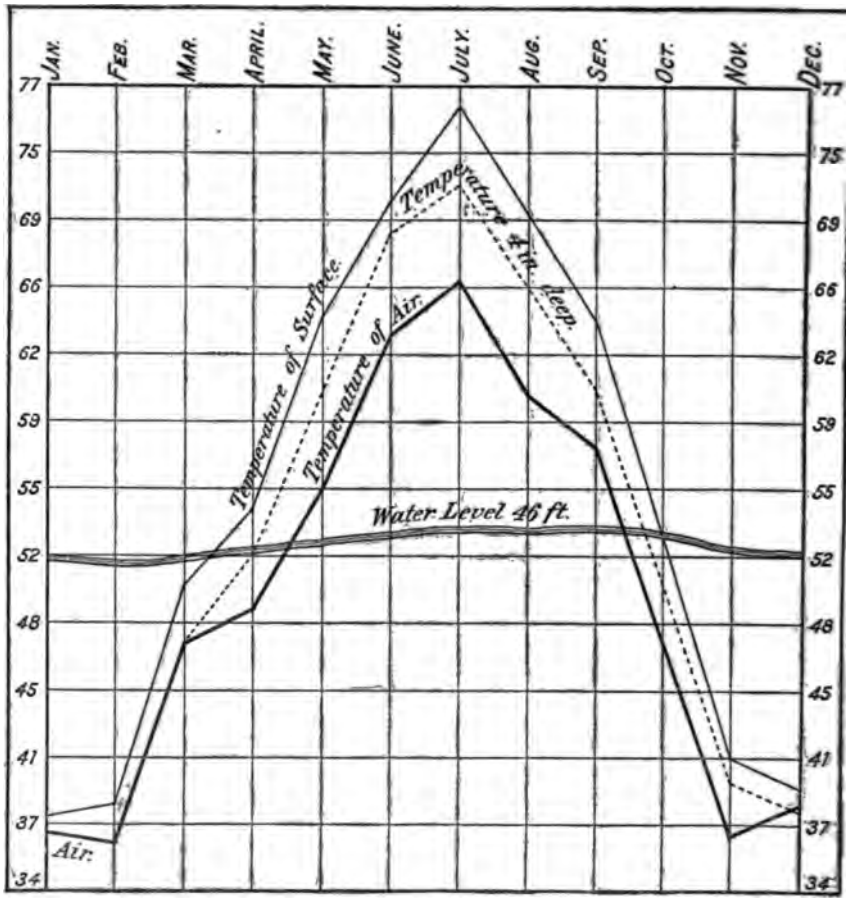
difference of the amount of dew on the pinned-open leaflets and on those which had gone to sleep was generally conspicuous, those having gone to sleep being sometimes absolutely dry, whilst the leaflets which had been pinned open were coated with large beads or dew. This shows how much cooler the leaflets fully exposed to the zenith must have become than those which stood almost upright, pointing up or down during the night. From the many experiments we have made, there can be no doubt that the position of leaves at night affects their temperature through radiation to such a degree that when exposed to a clear sky during a frost it is a question of life and death."[1]

It is a wonderful spectacle, on a warm, sunny day, to behold the leaflets of the *Averrhoa bilimbi*, one after another, sinking rapidly downward and again ascending slowly, while at night the leaves hang vertically and motionlessly down.[2] Indeed, Mr. Darwin was evidently impressed with *Averrhoa bilimbi*. It

[1] Power of Movement in Plants, pp. 293, 294.

[2] Power of Movement, p. 330.

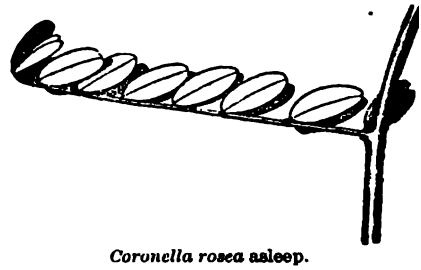
is a plant of the Oxalis genus, and, like members of that genus, sleeps, moves spo taneously during the day, and responds to the touch, though in the Averrhoa a



Temperature of air and surface of soil in degrees Fahrenheit. From report of Station o Agricultural Climatology (1896), Juvisy, France.

these faculties, especially the latter, is strongly marked. A pot plant of this kin was experimented with. It was kept at a high temperature, and the leaf to b

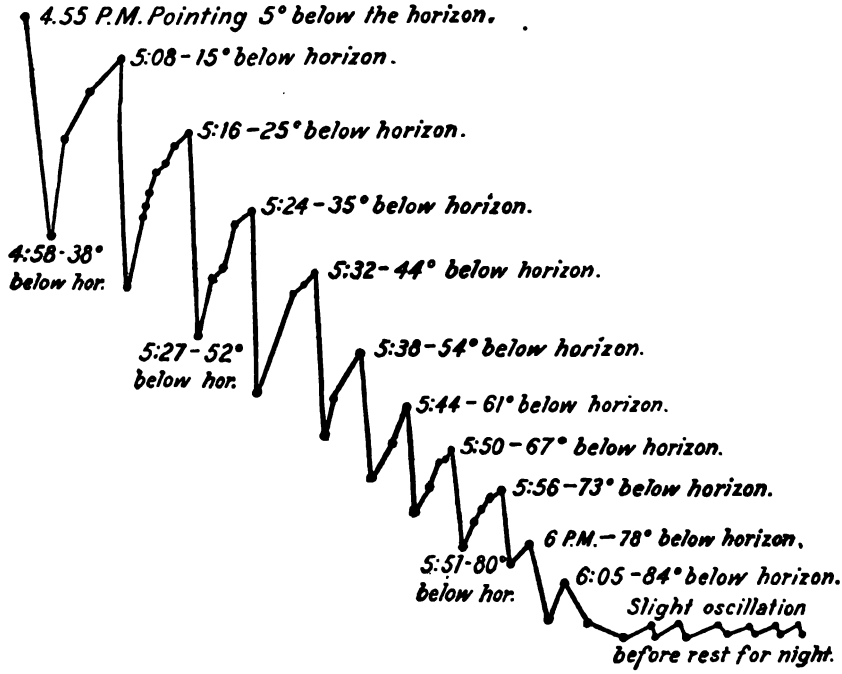
Averrhoa asleep.



Coronella rosea asleep.

observed was pointed straight at the observer, though separated from him by pane of glass upon which he traces the movements.

The main leaf stock or petiole (*a*), which is in constant motion, was so stationed that the leaf stock of one of the leaflets (*b*) was at the center of a graduated arc placed behind it. To this leaflet (*b*) was fixed a fine glass filament in such a manner as to project like a continuation of the leaf stock and mid rib of the leaf. This filament acted as a pointer, and as the leaf rose and fell, rotating about its joining place with the main foot stalk (*a*), its angular movement could be recorded by reading off at short intervals of time the position of the glass filament on the graduated arc, and in order to avoid optical illusions the readings were made through a small ring painted on the vertical glass in a line with the leaf joint and the center of the graduated arc. In the following diagram we learn the course of the point of the leaflet during its evening descent, when going to sleep:



Let us see now how this leaf acted under a practically stationary temperature, but a quick change from bright sunshine to shadow (p. 980). This will illustrate the second of the three causes of the movements of leaves, to wit, some few plants move either upward or downward when the sun shines intensely on them, which has sometimes been called diurnal sleep.[1]

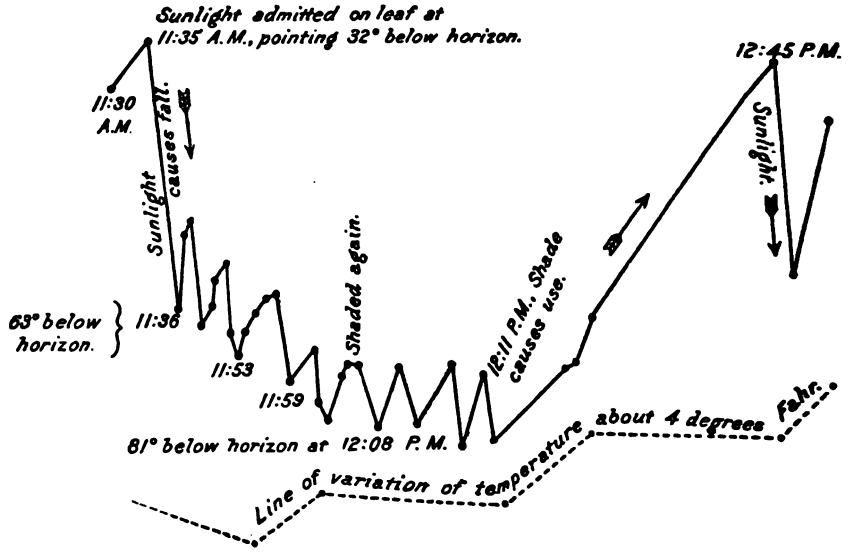
And finally here is the effect of a change of temperature of 14° F. during two hours and fifteen minutes in the heated part of the day (lower fig., p. 980). This may, with some modifications as to the nodding around of the leaf or circumnutation, be taken to illustrate the third cause of movements that leaves make.

The diagram upon the margin of the page 981 represents the circumnutation of a leaf of the well-known hothouse climber called *Cissus discolor*. The period of time spent by the leaf in scratching this outline outside of the hothouse in a tem-

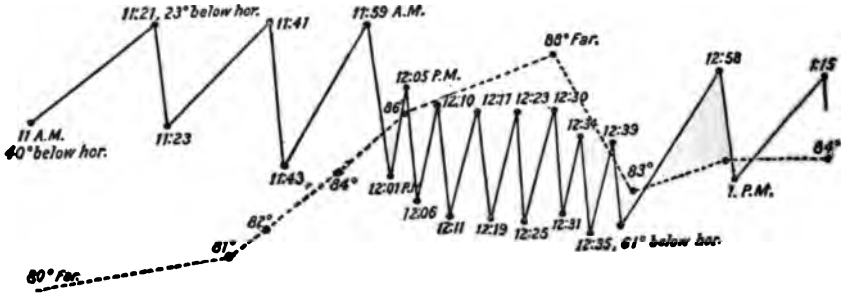
[1] Power of Movement, p. 281.

perature too cool for its vigorous action (59° or 60° F.) was thirty-one hours and thirty minutes—10.30 a. m., May 28, to 6 p. m. of the following day. The dotted line indicates the nocturnal movement.

Such are the movements of leaves. If, in attempting to show briefly the wonderful movements of mere plants, we have chosen specimens that are not found in the nearest field or woods, it is because the operations of nature are conducted



on such a delicate scale that it is only where she has accentuated them in some out-of-way plant that they can be observed. But even then nature is far from theatrical. There is no "last scene," nor does the curtain fall at the end of the first act upon a carefully arranged situation, except at rare intervals, and then a tragedy is played upon the grandest scale imaginable: Half of a mountain, such



as Krakatoa, is tossed into the air and 70,000 people are destroyed, a Pompeii is buried, or a Goldau or golden valley, once near the Righi Mountain, is sent headlong down into a Swiss lake, a mass 100 feet deep, 2 miles long, and a fifth of a mile wide, containing four villages and 1,000 people, and covered with burning timber, ignited by the friction of the moving rocks and saturated with the steam of the vaporized subterranean waters.

The first movement that a plant makes is to back out of its seed case.[1] The root at once strikes for the center of the earth. If seeds are germinated upon a wheel revolving parallel to the surface of the earth, the roots will follow an oblique line that will slant more or less toward the earth, according as the wheel goes round faster or slower. Having thus commenced, the root lifts what is called the head or top of the plant into the air, either from the ground or out of its own body. This head consists of two or more leaves, which have no more resemblance to the true foliage of the tree—the third phenomenon to appear—than the tadpole has to the frog, as may be seen from figures D and E, page 982, specially selected to show extremes of divergence between the seed and the true leaves.

The tip of the root or radicle, as it is called, as soon as it protrudes from the seed coats begins to circumnutate or revolves and the whole growing part continues to do so as long as that root continues to grow. In winding its way downward the root insinuates rather than forces itself. The root of a sprouting bean will lift a weight of at least a quarter of a pound placed on top of it, but will make no impression upon a piece of tinfoil placed beneath it, though that foil is so thin that a little soft-wood stick with an end resembling the root tip will dent it if a weight of a quarter of an ounce be gently placed upon its upper end.[2] It seems impossible to conceive of any motion forcible enough to penetrate the soil without connecting with it the idea of a blow delivered against the material through which entrance is being made, but the conception is facilitated if, instead of looking on the root tip as an awl driven by blows from within, we regard it as an hydraulic press. The root cap, a delicate point, finding entrance in the porous soil, is enlarged by the formation of new cells laid on within the socket of the cap which holds the root proper, and it may be assumed that a pressure that will lift a quarter of a pound will squeeze the earth aside. In the case of a pumpkin, indeed, we shall find the formation of cells lifting 5,000 pounds, just as the flow of sap indicated a pressure of 4 or even 5 atmospheres. But there is still another conjecture that may be ventured, and that is a comparison of the sucking-in power of the root with that of the driven well sunk to a gravelly stratum. Such a well will eventually absorb the very fine particles among the gravel, and, the water being lifted out thus, creates a reservoir or pocket for itself.

To illustrate this, reference is made to the figures on page 931, proving that the muff of hairs is essentially the feeding part of the root. Let such a sprouting plant as is represented in those figures be carefully lifted and marked by some innoxious fluid into three parts, the lower one being divided into ten subsections, and then let the plant be placed in damp moss until its root has grown to three times its original length. It will be found that practically only the ten divisional marks have separated; in short, the root grows most between the cap and the top of muff, as is shown in the diagrams given in the cut on page 983.[3]

"We know that it is the part of the root just above the cap that grows the fastest, and it is certain that after the cap has been cut off the stump goes on growing at

[1] Professor Balfour in Ency. Brit. (p. 94, English edition), makes this statement. Professor Gray, in his review of Darwin's Movement in Plants, uses this language: "The radical with which the germination of decotyledonous seeds usually begins," p. 305-306 of vol. 1, Scientific Papers of Asa Gray.

[2] Power of Movements in Plants, pp. 69, 70.

[3] The figures and statements are taken from Mr. August Daguillon's Notions de Botanique, 2nd. ed., Paris, 1892. Van Tieghem stated in 1870 it had been found out that it was not the root cap or the spongioles that feed the plant.

such a rate that its length has often doubled in a day; nor does the removal of the cap prevent the part between the muff and the stump from bending if the plant has fairly started," says Darwin.[1] With a muff of hairs soaking up the water above the cap, it would seem that the cap would never be earth bound and its shaft would always have room to wriggle and thus to work the cap toward water, for which its scent is as keen as that of a hound for its prey. It is not mineral

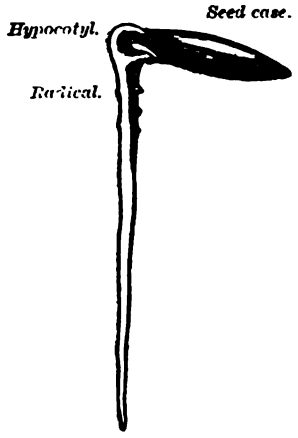


FIG. A.—Curcubita ovifera, germinating seed showing heel or peg holding down lower lip of seed coat. (Darwin, Power of Movement in Plants, p. 102.) If the lower lip of the seed coat is cut away, the seeds "come up" with tops boxed up in their cases, and are thus unable to act as chlorophyll plants.

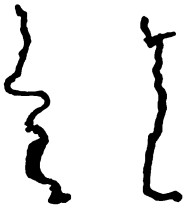


FIG. C.—Tracks left by tips of radical on smoked glass placed at angle of 70°. (Power of movement in plants, p. 99.)

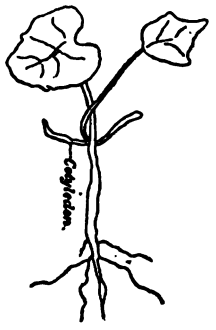


FIG. D.—Seedling of *Menisperinum canadense*. From Lubbock's Seedlings.

FIG. E.—Hakea acicularis (Australia). From Lubbock's Seedlings.

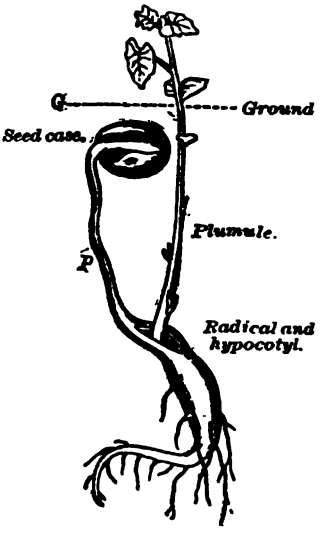


FIG. B.—Curcubita megarrhiza (Californica) (Gray); plant sprouting after the fall rains; about Christmas buries itself four or five inches in the ground, and is thus protected from the approaching cold of January (letter to Professor Gray, of Harvard); and in a few weeks the lower end of the sprout sent down by the seed is enlarged into a little tuber abounding in starch. Mr. Darwin thinks that this protects it from animals, but possibly the dry Californian summer has something to do with it. (Prof. Asa Gray.) Like figure A, this is a gourd, but there is no vestige of a peg nor is there any necessity for one.

nutriment, but water, that the cap seeks, and if it were necessary to explain the ramification of the lateral roots, it might be said that they are fostered by the shade and drainage of the foliage which has been produced by the taproot. It is thought that this point is well illustrated in the figures on page 984.[2]

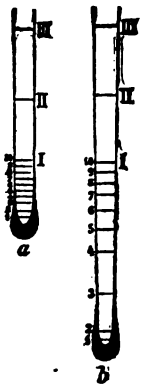
Thus endowed with machinery, the plant works. It is a part of the "blind economy" of nature, but it seems to throw itself into the struggle for the perfec-

[1] Power of Motion, pp. 542, 543.

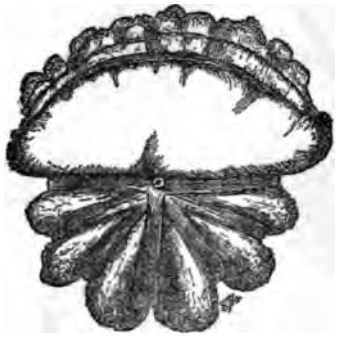
[2] Mr. Sargent, in Appleton's Popular Science, has given these cuts to illustrate the effect on roots of the drip of a watershed. November, 1890.

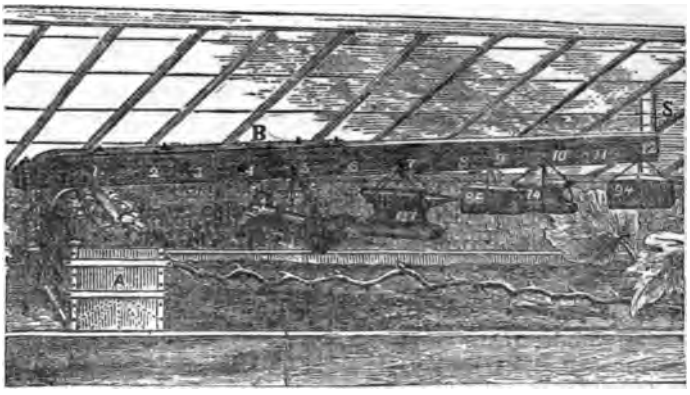
tion of its fruit with energy, though its only reward is to be the preservation of its kind. Some years ago[1] a pumpkin some 8 inches in diameter was imprisoned in a close-fitting box, but instead of a top of wood a network of iron bars was fitted over the upper surface of the fruit. Across this cage and resting on the iron bars was placed a beam 5 by 6 inches square and 9 feet long, subsequently strengthened by an iron plate 4 inches wide, half an inch thick, and 5 feet long.

In the course of the development of this fruit it lifted, on August 21, 60 pounds; August 27, 356 pounds; September 11, 1,100 pounds; September 30, 2,015 pounds;



The part of the root that elongates.





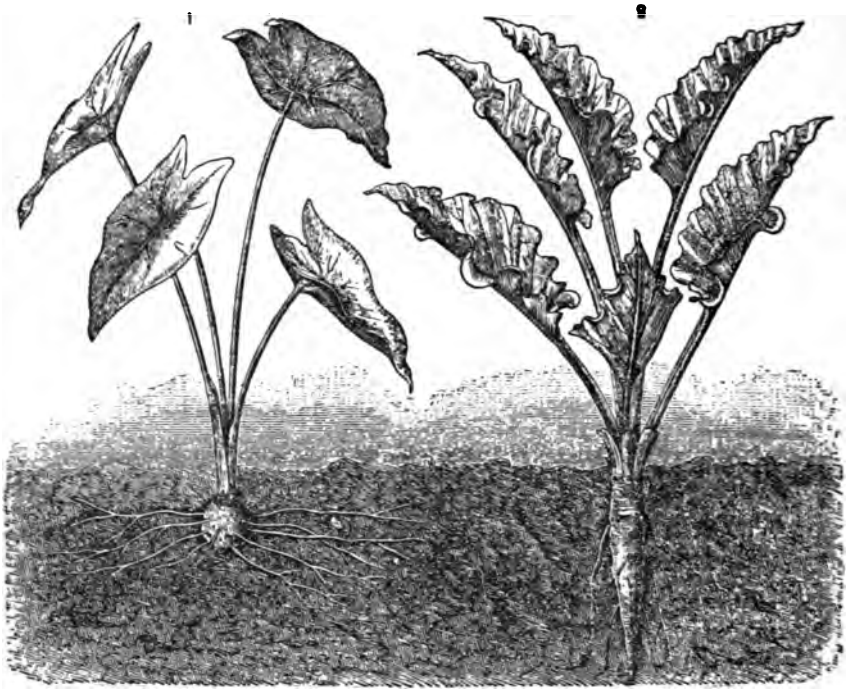
October 24, 4,120 pounds, and when, on the 31st, the lift had reached 5,000 pounds, the iron cage or network bent beneath the strain. The interior of the pumpkin was filled with fibrous tissue and the normal number of plump and apparently perfect seeds, though the pumpkin itself was malformed around the bars of its cage so as to be beyond recognition, the fruit having adapted itself to whatever space it could find as readily as though it had been a mass of caoutchouc. The lifting power, strange to say, was greatest at midnight. It is sometimes said

[1] Addresses before the Massachusetts Agricultural Societies, by President Clark, of the Massachusetts College, in 1874 and 1875.

that mushrooms will spring up in a night, but we know that mushrooms do not elaborate inorganic material into the fermenting matters upon which they feed. To do that requires time.

HUMAN INTERFERENCE AND "NATURAL SELECTION" IN THE VEGETABLE KINGDOM.

Professor Wiesner, of Vienna, does not believe in circumnutation; his experiments with plants tell him a different tale. He contends that their movement is caused by a leaning first to this and then to the opposite side, due to inequality in the force which is lifting up, or, in the case of the root, pushing down the growing mass, or even it may be caused by irregularity or unsymmetry of structure. This is substituting a mechanical view for the quite different one advanced by Darwin as an hypothesis. On the Darwinian theory of adaptation of a plant to accom-

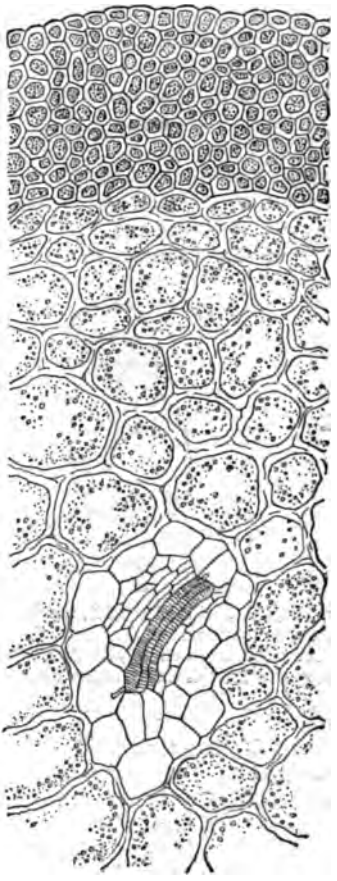


Caladium, esculentum showing centrifugal watershed. Rhubarb, showing centripetal watershed.

plish its own inheritance, it must apply old wheels, springs, and pulleys to new conditions.[1] A spiral movement, then, if a regular movement, is not an accident, but an inheritance. The act of nodding around or circumnutating is a spontaneous act, which in psychology is called reflex. But in psychology a reflex act is a "nervous" act, and is generalized and called the faculty of "irritability." In vegetable physiology the nearest approach to a reflex act is a "turgescence," a swelling of the cell, or a number of cells, caused, it is said, by "osmosis." Turgescence has two directions, geotropic and heliotropic. Geotropism is the result when the plant bends toward or sinks its parts in the earth; heliotropism is when it rears its parts aloft. Geotropism may be called the effect of gravity, and heliotropism the effect of light. It is not the purpose on the present occasion to enter into the niceties of either

[1] On the Fertilization of Orchids by Insects, 1862, 2d Amer. ed.; revised 1892, pp. 283, 284.

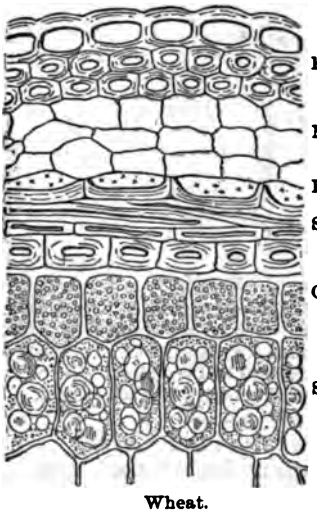
of these isms, the literature of which is mostly in German, and has been largely the work since Hofmeister, of Sachs, and his botanical institute at the University of Würzburg. It is not to be wondered at that in the two countries of Europe—England and the South German States—where varied agriculture has flourished the best, we should find the best and most prolific investigations upon the dynamics of vegetation. It must be assumed then that roots are naturally geotropic and chlorophyllian leaves are naturally heliotropic. There is, therefore, strong evidence that plants show a reflex activity, that is to say, a spontaneous power within themselves to react upon their surroundings for their own good, and instead of agricultural instruction and inquiry confining themselves to the soil, they may busy themselves like the breeder of sheep and of race horses with the original habitat and the reflex idiosyncracies of the plant. Indeed it may



Fruit or storage cells: Tomato.

Cross cut of the "husk" of a tomato. Ep, the epicarp or "skin;" Ms, the mesocarpor "flesh." The shaded parts represent red coloring matter; the unshaded part in the mesocarp a bundle of fibers.

Husk.



Wheat.

Cross cut of a grain of wheat. Ep, epicarp (yellow brown); Ms, mesocarp; End, punctured cells (yellow) or endocarp; Sp, skin of seed or spermoderm; G, gluten cells; St, starch cells, making most of seed. After V. Bonnet in Mace's "Les substances alimentaires," Paris, 1891. Enlargement, Ep equals 0.02 of an inch.

be said that Mr. Darwin emits a criticism from which it may be inferred that this has not always been done. "We experimented," said that observer, "on a variety of the common pea, the Yorkshire Hero, which has a much wrinkled, tough skin, too large for the seed leaves, so that out of thirty peas which had been soaked for twenty-four hours and then allowed to germinate on damp sand, the radical or germinating sprout of three, one-tenth of all, were unable to escape, and were crumpled up in a strange manner within the skin; four others were abruptly bent round the edges of the ruptured skin against which they had pressed. Such

abnormalities would probably never, or very rarely, occur with forms developed in a state of nature *and subjected to natural selection*."[1] Professor Trail, of London University, England, informed Dr. Francis Warner that by increasing the edible or "cellular" portion of the wild carrot, which is comparatively largely composed of fiber, the "cultivated root is much more liable to disease from attack of fungus, while fluids from the soil have to penetrate through a thicker layer of cellular tissue [or flesh] to the vascular bundles [or fibers] than in the case of the wild plant. The altered proportional growth of parenchyma [flesh] and the vascular bundles [fiber] *may be advantageous to the gardener, but is not advantageous to the plant*."[2] It is therefore proper to ask, "What is natural selection?"

The part of the plant which is most attractive to the insect, as well as to the human eye, is the flower. Yet lichens, mosses, and fungi are constantly taken as models by insects, and there is probably nothing in the vegetable kingdom that is not imitated by some animal form,[3] but the menteur à triple étage, the thrice-dyed liar of this description, is the African insect whose disproportionately broadened back bears the impress of a vivid green leaf with midrib and veins complete. On the other hand, plants have uses for insects. "The forms and colors of wild flowers," says Sir John Lubbock, an authority on the manner and customs of

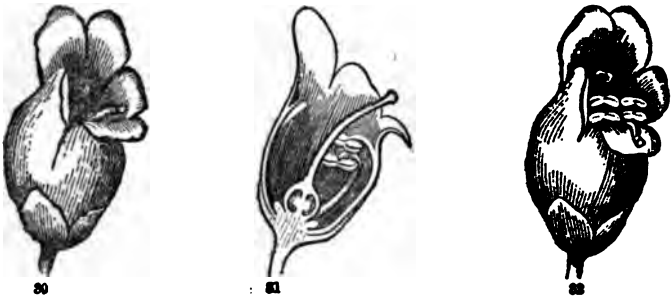


FIG. 30. Flower of Scrophularia nodosa, the first day. Fig. 31. Inside view of it, the front half cut away. The stigma is erect and fresh. Fig. 32. Flower as it appears on the second day. The anthers are erect and fresh, but the stigma, or rather the pistil, is practically dead unless it has been fertilized by the pollen of the anthers of some flower of Scrophularia, either by an insect or the wind bringing it to the stigma. [After Gray.]

insects, "are mainly owing to the unconscious selection exercised by insects, although no doubt the existence of a certain amount of coloring matter is, as we see in the autumn tints, in various fungi, seaweeds, etc., due to other causes." It will at once appear what an important bearing these facts would have in suggesting or proving an hypothesis that maintains that self-fertilization tends to produce weaklings in the vegetable kingdom, and that cross fertilization—that is, the fertilization of one flower by the pollen brought from another—is necessary to the production of a vigorous vegetable constitution.[4]

It has been shown how plants "sleep." It is the same with flowers. The dandelion is said to close at 5 p. m., the white water lily at 4, while other flowers, like the night-blooming cereus, open only in the cool of the evening, or, like the

[1] Power of Movement, pp. 156, 157. The italics are not in the original.

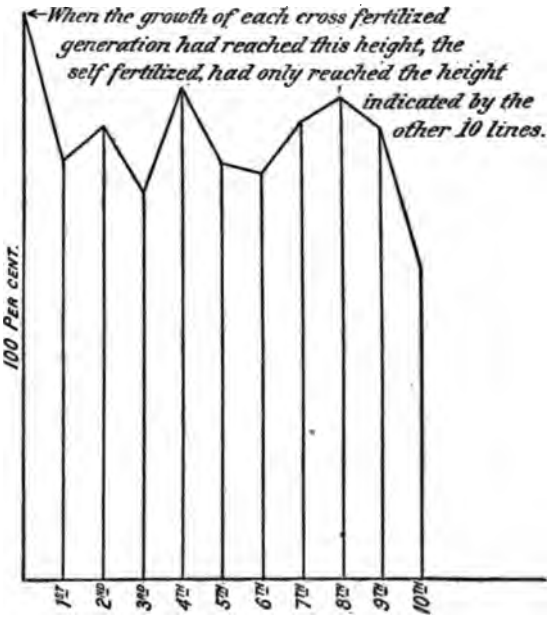
[2] Anatomy of Movement, a treatise on the action of nerve centers, etc., Warner, London, 1887, pp. 56, 57. Italics not in original.

[3] British Wild Flowers Considered in Relation to Insects, London, 1890, by Sir John Lubbock,

[4] "It is hardly an exaggeration to say that nature tells us in the most emphatic manner that she abhors perpetual self-fertilization."—Fertilization of Orchids, last sentence in book. Cf. also chapter on Exogamy and Endogamy and their relation to incest in Starke's Primitive Family.

morning glory, in the freshness of breaking day. "I would venture to suggest," says Sir John Lubbock, "that the closing of flowers may have reference to the habits of insects, and I may observe, in support of my suggestion, that wind-fertilized flowers do not sleep."[1] Be this as it may, Mr. Darwin does not hesitate likewise to venture an assertion that "as plants are adapted by such diversified and effective means for cross fertilization, it may be inferred from that fact alone that they derive some great benefit from the process." In fact, such an inference is the positive or ethical import of the Darwinian hypothesis.[2]

Three of the tests made by Mr. Darwin as to the variation of plants under human manipulation are especially prominent, two of them, those on an exotic morning glory and on the pea, being pointed out by himself, and one, on corn (*Zea mais*), by Mr. Galton, who selects the results for statistical interpretation from a number of sets of observations. Mr. Darwin bred ten generations of plants of the morning glory, and as far as the vigor of generation is concerned the following diagram will show the results. The taller line indicates the height to which the plants grew which came from seeds produced by the fecundating matter of two different flowers on two different plants. The shorter lines indicates the height to which plants grew which came from seeds which were produced by one flower of a plant entirely within itself.



Before turning to another test, which had an entirely different suggestion, let us make a distinction about progenitors of the seeds experimented with. Let us call all seeds formed by the flower itself, whether composed of one or more pistils, an incestuous seed, formed by vegetable brothers and sisters, but when the seed is formed by the pistil or female portion of one flower when fecundated by the pollen from the anther of another flower (both flowers coming from sister or brother seeds), then let us call the seed formed by that kind of cross fertilization cousin seeds. It will be observed that the long line represents the vigor of the cousin seeds and the shorter ones the incestuous seeds. To show that there is not the slightest attempt to beg the question for the cousin seed by the mere ideas which words suggest, another Darwinian test is given, in which the incestuous seeds apparently turn the tables on the cousins. This is the experiment with a variety of the pea called the "Early Emperor" which had been self-fertilized for many generations:

	Cousin seeds (100 per cent).
	Incestuous seeds.

"There can be no doubt that the result would have been widely different," says

[1] British Wild Flowers, etc., p. 26.

[2] The Effects of Cross and Self Fertilization in the Vegetable Kingdom, p. 2.

Mr. Darwin,[1] "if any two varieties out of the numberless ones which exist had been crossed." But the element he lays particular stress upon is environment. He ascertained by crossing the ninth generation of morning glory cousins with pollen from a stranger family that he could produce plants as superior to the tenth generation (100 to 78) of cousins as that generation (100 to 77) was superior to the tenth incestuous generation. "The most important fact at which I have arrived," he says, "is that the mere act of crossing by itself does no good. The good depends on the individuals which are crossed differing slightly in constitution, owing to their progenitors having been subjected during several generations to slightly different conditions, or to what in our ignorance we call spontaneous variation. * * * This throws light on the origin of the two sexes and on their separation or union in the same individual, and lastly on the whole subject of hybridism, which is one of the greatest obstacles to the general acceptance and progress of the great principle of evolution."[2]

Still as between plants from cousin seeds and those from incestuous seeds the greater constitutional vigor is with the cousins. They not only grow higher, after getting well started, but they will withstand extremes of temperature better, the deadly pressure of competition in a crowded vegetable community, and even when they have not exceeded the plants from incestuous seeds in growth, when cut down they sprout and grow more vigorously. It is now necessary to close these remarks about heredity with the facts about plants grown from corn seeds, by Mr. Darwin, and sent to Mr. Galton for statistical arrangement, as before mentioned.

Mr. Darwin's record, each line representing two opponents germinating at same time.			Arranged by Mr. Galton in order of magnitude.				
			In separate pots.		In a single series.		
1	2	3	4	5	6	7	8
	Cousins.	Incestuous.	Cousins.	Incestuous.	Cousins.	Incestuous.	Difference.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Pot 1	23/8	17 1/8	23 3/8	20 1/8	23 3/8	20 1/8	3 1/4
	12	20 1/8	21	20	23 1/8	20	3 1/8
	21	20	12	17 1/8	23	20	3
					22 1/8	18 3/8	3 3/4
Pot 2	22	20	22	20	22 1/8	18 3/8	3 3/4
	19 1/8	18 3/8	21 3/8	18 3/8	22	18 3/8	3 5/8
	21 3/8	18 3/8	19 1/8	18 3/8	21 3/8	18	3 3/8
					21 3/8	18	3 3/8
Pot 3	22 1/8	18 3/8	23 3/8	18 3/8	21	18	3
	20 3/8	15 3/8	22 1/8	18	21	17 3/8	3 5/8
	18 3/8	16 3/8	21 3/8	16 3/8	20 3/8	16 3/8	3 1/8
	21 3/8	18	20 3/8	16 3/8	19 1/8	16 3/8	2 3/4
	23 3/8	16 3/8	18 3/8	15 3/8	18 3/8	15 3/8	3
					12	15 3/8	−3 3/8
					12	12 3/8	−0 3/8
Pot 4	21	18	23	18			
	22 1/8	12 3/8	22 1/8	18			
	23	15 3/8	21	15 3/8			
	12	18	12	12 3/8			

THE SYNTHETIC CHEMISTRY AND BIOLOGY.

Some explain the movements of plants by saying that the plant performs its movements in a mechanical manner as the compass needle follows the magnet, others that there is an act of willing perhaps, certainly a reflex or spontaneous act on the part of the plant, such as the winking of the eye when suddenly affected. In short, on one side it is claimed that the plant moves mechanically because its cells swell (turgesce) unequally, and on the other that the plant is endowed with "irritability." "When my father wrote our book upon the power

[1] Cross Fertilization, etc., p. 163. [2] Cross Fertilization, p. 27.

of movement in plants," says Mr. Francis Darwin,[1] "he adopted the conception of irritability, and the only trace that he was able to find of similar ideas was a passage from Sachs, in which that writer said: 'The living matter of plants is internally differentiated in such a way that the different parts are endowed with specific energies resembling those of the nerves (Sinnesnerven) of animals.'"[2] The nearest approach that science can make to living matter is a class of chemical compounds called the compounds of carbon[3] (or organic chemistry), which at one time were thought to be producible by living organisms alone. But this idea has been shown to be erroneous, for several of such compounds have been formed from inorganic substances without the intervention of the "life process," and these successes have changed the "new chemistry" of the sixties into a still newer chemistry to which the name "synthetic" is being given, as it is based on constructive rather than destructive analysis. In fact, beside the chemistry of oxygen and the oxides there is now the chemistry of the carbons, while hydrogen and nitrogen in the oxide forms of water or nitric acid have a leaning toward carbon that is peculiar to themselves, though it is going much too far to say that their combinations with carbon form "living matter of plants," a property which is generally spoken of as belonging particularly to "protoplasm."

The first result of synthetic chemistry was startling. Water was made out of two "airs." The apparatus by which this feat was accomplished in the hands of an Englishman, Cavendish, was not intricate. An open-mouthed glass jar, turned upside down, was filled with hydrogen, and then a candle and oxygen were introduced, the water formed collecting on the sides of the jar and dropping down. To a French chemist, however, belongs the honor of founding the synthetic chemistry. This gentleman, Monsieur M. Berthelot, succeeded in making acetylene by igniting carbon sticks in an atmosphere of hydrogen. In the following notice an attempt will be made to explain, with as few inaccuracies as possible, the ideas of M. Berthelot, who may be looked upon as doing for the chemistry of the carbon compounds or organic chemistry what M. Lavoisier did for the chemistry of the oxides or inorganic chemistry.

In "organic chemistry founded upon synthesis," there are eight fundamental types, eight types performing eight functions, eight functions here synthetically arranged in the order of their formation.

I. Hydrogenated carbons (acetylene CH, ethelene CH^2, etc.).
II. Oxidized hydrogenated carbons formed of carbon, hydrogen, oxygen.
  (*a*) Alcohols. Ordinary alcohol, for example.
  (*b*) Aldehydes. An alcohol from which two atoms of hydrogen have been taken, such as camphor.
  (*c*) Acids. An oxidized aldehyde, acetic acid.
  (*d*) Ethers. Ordinary ether, for example, formed from an alcohol by treatment with potassium, sodium, iodine, bromine, chlorine, or from (*b*) or (*c*).
III. Nitrified hydrogenated carbons formed of carbon, hydrogen, and nitrogen.
  (*a*) Alcalis. The union of ammonia with the alcohols or aldehydes.
  (*b*) Amides. The union of ammonia with the acids with separation of water, such as albumen.
IV. Compound metallic radicals formed by the reaction of the metals upon certain ethers, such as cacodyle composed of carbon, hydrogen, and arsenic.

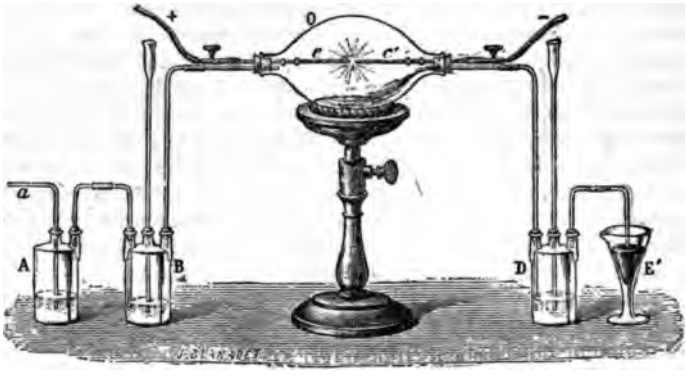
Of all these functions, two—the hydrogenated carbons and the oxidized hydrogenated carbons called alcohols—are of the greatest importance. These once obtained, it is easy to form the six other functions. These two, then, are the true foundation of organic chemistry. The hydrogenated carbons are formed by the action of the electric arc upon hydrogen and carbon as shown in the cut below.

[1] In his address on Curves made by Plants, at the meeting of the British Association for the Advancement of Science, at Cardiff.

[2] Sachs's Arbeiten, Vol. II, 1879, p. 282, as quoted by Mr. Francis Darwin in Republished (in French) Address by M. Richet, in Revue Scientifique, October 3, 1891.

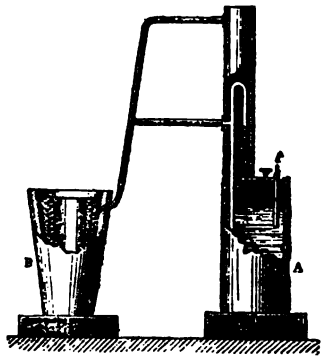
[3] Cf. Remsen's "An Introduction to the Study of the Compounds of Carbon" for the name.

Acetylene (CH) being thus produced, ethelene or "olefiant gas" (CH^2) is generated from it in the same way by certain precautions, and so on to formene or "marsh gas" (CH^4). Now, acetylene may be condensed into a liquid which is like, but is not, water. These products are called diacetylene, triacetylene ("benzine"), tetracetylene, or styrolene, which is formed by vegetables, etc., according as two, three, four, or more acetylene molecules unite to form the liquid.



The method of M. Berthelot in making acetylene one of the two bases of the chemistry of living substances.—Troost's Chemistry.

From the same property ammonia gas is used as a refrigerating agent. A quantity of water, having been saturated with ammonia gas, is heated in the cylinder A, and the gas is freed and passes over into the cool vessel B and liquefies, as shown in the illustration. Then the vessel C containing the water to be frozen into ice is placed in the vessel B and the cylinder A is surrounded with cold water. The liquid ammonia in B slowly changes back into a gas, which is again absorbed by the water in A, and, in doing so, makes things so cold in B, which it has left, as to freeze the pure water in C, which was the object to be effected by the operations.



Miniature ice machine.

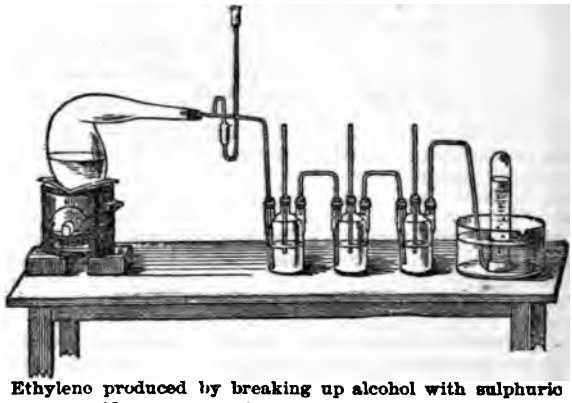
Why liquids should act thus in vaporizing is a very large subject, and it will suffice to say that "a great quantity of heat becomes latent during the formation of a gas;" yet to illustrate the curious effects produced, when common air has been so condensed as to be heard dropping in the condenser and so congealed as to resemble blanc mange (it "is a curious sight to see a cake of it well up in the middle as it changes back into air on being taken from the condenser") an account of the apparatus used in the process is given in Note A to this chapter. But let us pass to the oxidized hydrogenated carbons, and particularly the alcohols.

In the methodic presentation of the threefold or ternary compounds of carbon with hydrogen and oxygen the alcohols are of the greatest importance. Prepared by the means of the hydrogenated carbons, they, in turn, are used to fabricate the ethers, aldehydes acids, alcalis, and the rest. M. Berthelot so insists upon the chimie synthétique as opposed to the chimie analytique, that the difference must be illustrated. In a wine glass half filled with mercury let a tube filled with acetylene and hydrogen be introduced as shown in the view. Then let the tube be warmed and the result will be that "the organic" base acetylene (CH) will be hydrogenated and

become partly, in such an apparatus, ethylene (CH^2). This, like the illustration of the formation of acetylene, is ethelene formed by synthesis. Note on the other hand the production of ethelene by analysis. First about 50 metric grams of alcohol are poured into a cup surrounded by cold water, then about 300 grams of concentrated sulphuric acid is added, the whole being shaken to prevent breaking the glass. When the compound has cooled off it is run into a glass retort, as shown in the illustration, having some sand in the bottom. The alcohol under the influence of the sulphuric acid changes into ethylene and water, the first flowing off through the tube is washed in the first flask which contains potash to absorb carbonic and sulphurous acids passing along in company with the ethylene and again is acted on in the second flask which contains sulphuric acid which catches the ether while the ethylene passes on purified.

Now, if, as Dumas said, the discovery of the chemical principle of the alcohols is as important as the discovery of a new metal, it will be evident that the synthetic manner of forming them out of acetylene and its forms of benzine and marsh gas and the like will be of interest not only to temperance crusaders and to

Ethylene (CH_2) produced by warming acetylene (CH) with hydrogen (H) or "*Synthetic* chemistry."



Ethylene produced by breaking up alcohol with sulphuric acid (concentrated) or "*Analytic* chemistry."[1]

distillers, but to the public in general. Alcohols, says M. Berthelot, are divisible into five great classes:

Alcohols properly so called or primary alcohols.

Watered alcohols (alcools d'hydratation) or secondary alcohols.

Tertiary alcohols.

Phénols.

Alcohols having a mixed function (à fonction mixte).

These are subdivisible into orders, monotomic, diatomic, etc., according as the one or more molecules of water they contain is replaceable by an organic acid, and these orders are subdivisible into families, such as acetylic alcohols, benzenic alcohols, etc. We are here concerned with formation of a genuine alcohol. There is first the method of substitution, in which every hydrogenated carbon engenders an alcohol by substituting water for part of the hydrogen contained in marsh gas $CH^2(H^2)$ for example. In short, the carbon, before merely hydrogenated, is now hydrated by the addition of oxygen. But the work of water is still more emphatic in the making of an alcohol from a hydrogenated carbon by the method of addition. In the method of substitution half the hydrogen was oxidized, but in the method by addition the elements of water (hydrogen and oxygen) are simply

[1] Both these illustrations are taken from the Chemistry of M. Troost, professor at the Faculty of Sciences of Paris, eighth edition. Mr. Berthelot's book is a brief for the Chimie Synthetique, not a text-book.

added, but this is only possible with low grades of hydrogenation, such as acetylene (CH) or ethylene (CH_2). Insisting, then, irrespective of M. Berthelot, on the value of "substituting" and "adding" water, or the "elements of water" in the proportion in which water is formed, to the formation of the hydrocarbons or carbohydrates, known as cellulose, glucose, and cane sugar, and the other secretions of vegetable life, we pass to his conclusion générale:

The point of departure for the formation of organic matters is the same as that of the formation of mineral matters. We start out with carbon, hydrogen, oxygen, and nitrogen. With these and the mere play of the mineral forces we have formed twofold compounds of a fundamental nature and principally the hydrogenated carbons. They constitute the keystone of the whole edifice of organic chemistry. After having formed the hydrogenated carbons we have constructed, always starting out from realized facts and basing our work on methodical treatment and following general laws, a new class of compounds called alcohols, a threefold substance having no resemblance to anything in mineral chemistry and, moreover, formed here by the mere play of affinities. This synthesis gives to organic chemistry a definite basis. The alcohols in turn combine with the [organic] acids to form the ethers, a new class of artificial compounds, naturally produced as the odor of the greater number of fruits, aromatic and irritating qualities, seeds, such as in gaultheria and in mustard, and the waxes, such as beeswax. These same alcohols united to ammonia give rise to artificial alkalies, which, their laws being known, permits us to hope that at an early day we can reproduce artificially the vegetable alkalies, such as morphine, quinine, strychnine, nicotine, and other active principles in vegetation.

Again, if we manipulate the process a little we can oxidize the alcohols so as to form the aldehydes, a very singular group which contain the greater number of the naturally oxygenated essences, such as th. odor of mint and bitter almonds, ordinary camphor, etc., but to make these essences it is first necessary to realize the formations of the alcohols from which they are to be formed. A higher degree of oxidation of the alcohols engenders another class of compounds, the organic acids. A multitude of natural acids have been artificially formed from the alcohols, such as the acid of vinegar, of beer, of valerian; but when we come to the natural acids still more oxygenated, such as malic and tartaric, acids then we are unable as yet to produce by synthesis in our laboratories what nature produces in hers. From the acids come the ethers and the amides. The amides are compounds which are the result of the combination of acids with ammonia. To the study of the amides belongs undoubtedly the formation of all the natural nitrogenous principles which are not derived from the alcohols. Among the principles which have been artificially created by the synthetic chemistry it will suffice to mention urea, one of the most important excretions of the higher animals, taurine matter contained in the bile, gelatin, sugar, leucin, and hippuric acid. These general groups of organic compounds comprehend the volatile matters and the bodies that may be formed by them. What has been effected in the artificial formation of substances formed in living bodies is only the first stage of organic chemistry. Fibrine and woody fiber and the sugared and albuminous matters dissolved in the liquids which bathe these tissues are still without the sphere of the chemistry by synthesis. *The discovery of the way in which these substances may be made artificially will be the second stage of the progress of biologic chemistry.*

A review of the material sources of vegetation tends to affirm the old idea that plants are creatures of the atmosphere. "Man," said the Chemist Dumas, "is condensed air," and if that assertion can be made with some degree of probability of man, it is still more probably true of the food of man or of the food of the animals upon which man feeds. It has been already remarked on this occasion that nature, unlike the synthetic chemistry, starts with compounds. She takes an oxide of carbon, the deadly carbonic-acid gas, and it is broken up into its elements by the mechanism of the leaf worked by the sunbeams. Neglecting the free nitrogen of the air, she for some inexplicable reason feeds it to the plant in the form of nitric acid, another deadly poison, through the mechanism of a fungus microbe which works under cover of the soil. Hydrogen alone she is compelled to furnish to the plant in a compound form, and as for oxygen the plant in daylight both discards and absorbs it at the same time. These substances are not costly. The air is composed of oxygen and nitrogen and there is enough carbonic acid in it to sup-

ply many times over the needs of terrestrial vegetation, while water abounds except in vast interior basins like the American Desert, the Sahara, and the interior of Australia. Can science aid agriculture to appropriate these elements regularly and systematically? That is a problem of agricultural economy. What chemicals shall be poured into the soil? That is a problem of agricultural hygiene. Both are branches of practical agricultural chemistry.

The synthetic chemistry teaches us that the "elements" of biologic chemistry are not the sixty or seventy "elements" of the text-books, and spectrum analysis suggests the possibility that those sixty or seventy elements may be compounds, as M. Berthelot has shown the organic elements to be. The word element may therefore be a mere relative expression, and in any starting out it is possible to think that a table of elements may be drawn up to suit the convenience of the voyager. It therefore seems not unworthy of consideration to begin agricultural chemistry with a study of water, nitrification, the assimilation of carbon from carbonic acid, and the formation of the hydrogenated and hydrated carbons within the plant.

Among the many questions by which the brightest intellects which have busied themselves with agricultural chemistry are cowed is one which may be formulated in these words: Can I feed pigs on corn so that at six months old they will weigh 300 pounds? If so, what breed of pigs, on what kind of corn? This is a practical question, for a true answer to it would have enabled the possessor of the secret to have enriched himself at the expense of his neighbors who had not been sharp enough to obtain it. But to look upon public institutions as purveyors of money-making information for the practical inquirer is no more respectable than for a woman under the poor laws of England to regard herself as an heiress because she had a claim upon the parish for each of her five illegitimate children.

The farmers of western Europe, finding that the many agricultural colleges of their respective governments were incapable of telling each one how to get ahead of his neighbors in raising pigs, have begun the formation of trusts or "syndicates." So powerful are these organizations becoming that they merit attention and study. In the portion of this chapter which immediately follows these institutions are described after a brief review of the history of the agricultural population of Europe.

PART II.—SOCIOLOGICAL CONCEPTIONS.[1]

The growth of cities in population is frequently regarded as somehow connected with the present depression in agriculture (which it is the purpose of agricultural education to remove), though it might be supposed that the increase in the number of city dwellers would infallibly increase the price of the productions of the farmer. Such is not the case; and before engaging in the study of cooperation among producers of food and other raw material, the object of this portion of the chapter, it may be well to inquire under what conditions of birth rate, personal aspirations, and human faculties the people of the open country emigrate to the city, since, as Bacon says, ignorance of the cause masks the effect.

The great desire to live in cities which now animates the people of the nineteenth century is not peculiar to them. Before Rome had policed the Mediterranean Sea the little city-states that fringed its shores and occupied its islands were accustomed to store their productions and plunder in citadels built, as at Athens and Corinth, upon a precipitous rock; and subsequently, as their wealth and commerce increased, to inclose the citadel with wide-extending walls, as many centuries later the colonists in America built their blockhouse and then surrounded it with a stockade. But protection of life and property is not the incentive that is now

[1] It is to be remarked that the second congress (1896) of cooperation, composed of men of high political and social standing, demanded that every public-school child should be compelled to study cooperation in all agricultural and industrial schools for pupils over 15.

causing the cities to grow, for the present movement of the population is a · versal influence experienced by a very large number of individuals. These nom impulses are inherent in human nature, and the restlessness they produce in s ety at large has not failed to receive attention from government after each na has passed from the pastoral or wandering condition to one of fixed territo confines or nationality, or, in other words, become a state, or, in the languag the Greeks, a city.

COLONIZATION.

The most vigorous manner in which a society is relieved of its restless or agreeable elements is by an emigration which is induced by the hope of fortun of escaping the control of too rigorous laws. The revocation of the Edict of Na sent 400,000 useful merchants and artisans forth from France, and the possibili of acquiring wealth in the West Indies and on the Spanish Main relieved Spai many thousands of adventurers and nobles for whom she had no use after expulsion of the Moors. The interference with the Puritan form of worshi the English Government peopled New England, and the defeat of "King Church party" by the Presbyterians under Cromwell greatly swelled the pop tion of Virginia. The devastation of the Palatinate, one of the war measure Louis XIV, and the famine in Ireland, due to an exclusive reliance upon a sin crop, caused thousands to leave their native land for one holding out promise a more successful existence.

Another method of relieving society of an uncongenial element is that of tr portation. This, however, is far different from the natural emigration refe to above, since government seizes the person of the emigrant and sends him of the country either as a criminal or an insurrectionist. Tasmania was m years ago the penal colony of England, and France exported her criminal men women to the New World, as is graphically told in the romance of Manon Lesc by the Abbe Prevost, who probably saw the occurrences which he makes his h ine experience. Cæsar relieved Rome, "that den of robbers,"[1] of 80,000 of proletariate by transporting them beyond the Italian seas, and in ancient Gre the expatriation of a group of obstinate citizens was frequently and conscio made the remedy of relieving a political crisis, in order to serve, to use the guage of Curtius, "as a blood-letting in times of local feverish excitement."

In all this, let it be remarked, there is something of preconcertion or coo nation, and the movement is conceived to have taken place in the manner acc ing to which we fancy to ourselves the Aryans moving through the passes of Himalayas or the Helvetii, in Cæsar's account, moving into Gaul. It is the m we see; but to see the individual actors, to separate out an idea of the swee the movement, we must study the emigration from the Atlantic coast across Alleghenies. The Spaniards founded cities in America and dwelt in them; French established a line of trading posts from Quebec to New Orleans; but English have conquered the country, and in it the English language and the c mon law prevails.

ORGANIZATION OF THE PEOPLE.

Nevertheless, during antiquity and throughout the middle ages all men were at liberty to go where they pleased in pursuit of happiness. In the republic ancient Greece and Rome the State, or, as it was called, the "city," was concei as one separate class of inhabitants, called citizens, relieved from all private and all money-getting employments; "for it clearly follows," says Aristotle, "t

[1] Mommsen, Vol. IV, pp. 596, 598: "From the whole compass of the widespread empire pe flocked to Rome for speculation, for debauchery, for intrigue, for accomplishment in crim even for the purpose of hiding there from the eye of the law." If we try to conceive a Lon with the slave population of a former New Orleans, with the police of a modern Constantino the nonindustrial character of modern Rome, and the barricades and street riots of Paris in we shall acquire an approximate idea of the republican glory of ancient Rome.

in the State which is best governed the citizens who are absolutely and not merely relatively just men must not lead the life of mechanics or tradesmen, for such a life is ignoble and inimical to virtue; neither must they be farmers, since leisure is necessary both for the development of virtue and the performance of political duties."[1] "Government," says Mr. Edmund Burke in his Reflection on the French Revolution, evidently following Aristotle, "is not based on natural rights, but is to provide for human wants, and society requires not only that the passions of individuals should be subjected, but in the mass and body, as well as in the individuals, the inclinations of men should frequently be thwarted, their will controlled, and their passions brought into subjugation."

There have been three systems by which this subjugation has been attempted in European history, called, respectively, slavery, serfdom, and education. Upon each of these it is excusable to dwell for a moment in order to bring them into proper light, as two of them, slavery and serfdom, have signally failed to accomplish their purpose, and are matters of antiquarian interest.

SLAVERY.

"If a future historian," says M. Fustel de Coulange, "some centuries hence should attempt to relate the history of our civilization, it would be particularly necessary for him to study many things besides the life of the rural districts; but for the life of the European peoples existing between the Roman Republic and the sixteenth century, the study of their country life is sufficient." On the country estate was transacted the far larger part of the work, and there were elaborated both the wealth and the power of the community. It was in the interior of the country estate that men were brought together, and there the liberties and the restrictions belonging to each class were most marked, their inequalities exhibited, and their agreements and differences illuminated. To illustrate one of the inequalities thus announced by M. Fustel de Coulange, it is sufficient to say that Roman society had what it called a slave, or thing (res). This res was defined legally as one who is controlled by another, as property over which the master had the right of life or death, of loaning, pawning, or whipping. It is evident how differently a noncriminal white person is regarded at the present day. It is also evident that as all the slave earned was his master's, he would not be unduly excited by the spirit of acquisition. During the time of the first Roman emperors many of these rural slave persons were chained in gangs (vinctii). Thus the slave not only lacked liberty, but personality. This loss of personality was the especial vice of the system, for, notwithstanding the possibilities of cruelty, it is safe to say that the orderly slave was kindly treated.[2]

The numerical proportion of this rural slave population (many of whom were degenerated freemen) to the whole rural population is unknown. In Attica, containing the city of Athens, out of 500,000 people about 400,000 were neither citizens nor the wives or children of citizens.

SERFDOM.

But from the very trend of civilization even during the days of the Roman Empire a beginning was made to ameliorate the condition of the slave. The effort was in the nature of an appeal to the instinct in man which leads him to try

[1] Politics, "The governing classes," p. 221, vol. 1, of Jewett's translation. Grote interprets this in this way: The whole territory of the State belongs to them and is tilled by independent cultivators, by whom the produce is made over and apportioned under certain restrictions. Of course it will be understood that the politics is a theory about a State existing under exceedingly antiquated conditions.

[2] L'domaine rural chez les romains, Revue des Deux Mondes, September, 1886, also in part Hist. des Institutions Politiques de l'Ancienne France, L'Alleu et le Domaine Rural, Chap. I.

to take care of himself if compelled to. Some slaves were given plots of land to t for themselves. The master was thus freed from the necessity of providing f the slave's support, and could grasp as much as prudence or as little as generosi might suggest; but the first determined step in the way of enfranchisement w the enregistering these "cabined slaves" and their families as servi adscripti f the purpose of public taxation. Finally the State became strong enough to forb the master to sell the servus adscriptus unless the ground he tilled and his h were included as a part of the same transaction. It can not be said that the dai life of the slave was softer; probably, says M. Fustel de Coulange, it was hard for him, considering the slender resources he had at his command to struggle f existence. But he began to have a soul; he had a home from which, it is tru he might not move, but from which it is also true he could not legally moved. He had a wife and children; he had cares to worry him; success or defe to elevate or depress him, and he became acquainted with the great factors industrial life.

The germ of serfdom as a modification of slavery was merely sown by t Romans. It was nourished and propagated by the Germanic tribes that overr the Roman Empire. The Roman cabined serf was servus adscriptus—a sla inscribed on the tax lists; the feudal serf became fully ascriptitius glebae, o having a holding. As the northern tribes settled down, the maxim "no land wit out its lord"[1] policed the territory to which the serf was attached until the grow of cities, the Reformation, and the French Revolution swept the system out existence. The system of serfdom has been commented upon in this languag "To live and die as a serf upon the soil where one is born is the life of a pla which, while nourishing itself, is plundered of its fruit by its owner;" neverth less it may be added it is better than to be the mere talking tool, "the instr mentum vocale"[2] of the Roman country estate.

EDUCATION.

At the close of the period called the Reformation the peoples whom that mov ment deeply touched seem to have specialized their energies. The French ha won for themselves the European preeminence in art and literature, the Germa have cultivated philosophy both as religion and natural defense, and the Engli have thrown themselves into commerce and colonization. But even before th Reformation the people of England seem to have manifested a talent for person freedom as eventually expressed in the law of Habeas Corpus and the Bill Rights, only equaled by the Hellenic talent for form in art and literature and th Roman talent for centralization. Long before the expiration of the middle ag the courts held the serf to be a freeman against everybody but the owner of th land he was "ascribed to,"[3] and by the criminal or State law[4] he was on a perfe equality, as far as responsibility is concerned, with anybody in the land. H could appeal to the itinerant judge, whether "in eyre" or at "nisi prius," an place himself upon "his country" when he was claimed as a serf. It seems impo sible to separate the growth of personal freedom from the practice of the courts Westminster and the representation of the serf in the transaction of the busine

[1] Charles the Bald, of France, in 847 ordered each of his subjects to choose a lord, and the pr prietors of free lands offered their lands to a great lord, just as the States relinquished a part their powers to form a Federal Government.

[2] The elder Cato's brutal remark.

[3] Pollock, Land Laws, third edition, p. 61.

[4] The criminal law of England was a State monopoly long before it became so on the Con nent. Thus the court of King's bench, the highest of the three courts of law (King's benc common pleas, and exchequer) had a "Crown side," which took cognizance of all crimir causes, and the "plea side," which took cognizance of all civil causes except those of real (lan property (court of common pleas) and "revenue" (court of exchequer).

of the little local baronial court;[1] nor is it wide of the mark to regard the principle of the feudal system in England to be an effort to keep the land under cultivation, on the Aristotelian maxim of a division of labor between a class who are to work and not think and a class who are to think and fight but not otherwise to work.[2] In England the State in the beginning being an agricultural community, the organization of the people was effected by allowing the landlord certain rights upon the agriculturist as pay for his policing the manor over which he presided. With such a theory and the common law to invigorate and support it, the troubles which characterized the French Revolution culminated in England nearly two centuries before they did on the other side of the channel; but the political movement for personal liberty, "the rights of man," was in England masked under the name of theology and not under that of the "law of nature." There is no English law repealing serfdom such as that passed in France on the evening of August 4, 1789, nor any cabinet order like that of Prussia in 1808. Serfdom in England died out of pure inanition, and the last that was ever heard of it was a stray case during the reign of James I (1618).[3] In the process of this decay, which seems to have been particularly rapid during the disarming of the feudal barons by Henry VII, many persons were thrown upon the country, and to reduce the restlessness of the population the famous act of the fifth year of Elizabeth (1563) was passed, under the title of the statute of apprentices, though Mr. Froude claims that the act of the twenty-seventh year of Henry VIII (1536), drawn by that monarch with his own hand, was the first compulsory education law, for such that historian claims it to be.[4]

The seizure of the English monasteries by Henry VIII was based, in history at least, upon the plea that the funds which had accumulated in the hands of the religious corporations had not been given for the private use of the church, but for the poor and their instruction. But the money obtained in this way seems to have been appropriated somewhat after the manner described by Edmund Burke in these terms: "The monarch having sucked the blood of his prey threw the carcass to the jackals in waiting." Nevertheless about 250 "grammar" (i. e., Latin) schools were established for the education of that middle class or gentry which ruled England for the next three hundred years. Perhaps instead

[1] Cf. the title of the legislature of Massachusetts, to wit, "The general court of Massachusetts;" also the functions of the French Parliaments.

[2] Vinegradoff, Villanage in England, p. 158, for instance, as a basis for such a judgment; also Glasson, introduction to tome 4: Feodalite; and Aristotle's Politics, bk. 7, sec. 8. C. Ellis Stevens (in Sources of United States Constitution, a British work) calls attention to Taylor's "admirable condensation of the growth of the connection of the State with the local courts." In the course of the assessment and collection of the revenue, which was the chief work of the curia regis as a financial body, local disputes so constantly arose that it became necessary to send detachments of justices to adjust the business of the exchequer in each shire. As early as the reign of Henry I (1100 to 1135, say half a century after the conquest), officers of the exchequer were frequently sent through the country to assess the revenue; and in the reign of his grandson this custom was enforced with systematic regularity. The justices while thus engaged in provincial business sat in the shire moots where judicial work soon followed in the path of their official duties. In 1176 the Kingdom was divided into six circuits, to each of which were assigned three justices, who now for the first time were given in the "Pipe Rolls" the name of Justitiarii Itinerantes. After several intermediate changes in the number of the circuits it was at last provided by Magna Charta that two justices should be sent four times each year into each shire to take the assizes of novel disseizin, mort d'ancester (both real estate cases), and darrein presentment (which was ecclesiastic), the provincial visitations of the justices. (Taylor, Origin and Growth of the English Constitution.)

[3] Excepting Somersett's case, in which Lord Mansfield, 1760, delivered himself to this effect: "What ground is there for saying that the status of slavery is now recognized by the law of England? Villanage has long ceased to exist in England. [It had been argued that no statute had abolished the status of villanage.] The air of England has long been too pure for a slave, and every man is free who breathes it. Quamvis ille niger, quamvis tu candidus esses—Let the negro be discharged."

[4] Froude, History England (Tudor Period), vol. 1, pp. 87 and 89 (N. Y. ed.).

of the middle class it should be called the grammar or Latin school educa class, for through the aid of the endowments children of the laboring class w constantly fitted to pass into that of the directive class. Thus was institute process of natural selection. Any "gentleman" or member of the middle cl might become a nobleman. The youngest son of a noble was but a gentlem but the grandson of a nobleman yielded precedence to a newly made knight, a the dignity of knighthood was within the reach of any man who could by d gence and thrift realize a good estate or could attract notice by his valor in a b tle or a siege. There were untitled men well known to be descended from Norm knights who had broken the Saxon ranks at Hastings and had as crusaders sca the walls of Jerusalem, yet they bore no distinctive epithet other than that of squ and with no civil privileges beyond those enjoyed by every farmer and shopkeep The yeoman was not inclined to murmur at dignities to which his own child might rise. The grandee was not inclined to insult a class into which his o children must descend.[1] The key to success in England was personal abil either in battle or industry; but while providing schools for the children of educated class and for the bright-minded children of the poor class, the educat of the residuum or lower limit of the population was provided for by training manual labor. The theory was, in the language of Lord Derby,[2] that whene any youth, however poor, had shown really exceptional ability, he might enabled by some moderate pecuniary help afforded by some scholarship to go the classical school. Thus the State, through private endowment, segregated the bright intellects, just as before the Reformation they were picked out by monks and permitted by the lord of the manor, on the payment of a fee to him, desert the fields for the monastery.[3]

The next nation to consider the education of the emancipated serf was Fran In 1789 the French made the greatest effort ever made by a people to cut its h tory in twain, and they neglected nothing to render themselves unrecognizal "But I have always thought," continues M. De Tocqueville,[4] "that they w very much less successful in this singular enterprise than was fancied by oth or by themselves." Be this as it may, the whole system was swept away i single day and 150,000 villains or serfs, in the middle age sense of the word, w freed and as many nobles and nearly as many priests (130,000), who togeth owned three-fourths of the land, were deprived of their means of support for 25,000,000 who alone had paid the taxes (the nobleman and priest not being t ables) as well as the manorial dues, were liberated from the necessity of, amc other "seignorial rights," working fifty-two, more or fewer, days in the year their lord (corvée), of paying on the average one-sixth of the value of their hc ings when they transferred them to another (lods et vents), and of baking th bread and grinding their corn at the lord's oven and mill (banalités).

To educate the children of these emancipated agriculturists was the probl that the French revolutionists could not solve. Idealogues, as Napoleon cal

[1] Macaulay History England (The "Revolution"), p. 41 (Bs. ed.), also to same effect Roge Six Centuries Work and Wages, p. 199 (Eng. ed.), quoting Chief Justice Fortescue, a fourtee century authority.

Compare the situation in Germany in 1653, twenty-five years after the right of petition (1 of remonstrance) was affirmed by Charles I. The Elector of Brandenburg (Prussia) foun necessary to declare that Leibeigenshaft must subsist everywhere where it was customary, that wherever there was doubt the presumption was against freedom, and further that peasants must cease their complaining which was done from bad motives. (Quoted from Dr sen, Knapp, the text of the edict of 1714, and Stadelmann, by Cavaignac in La Formation d Prusse contemporaine.) The English law leaned to the side of freedom, and in theory at le presumed it.

[2] Address of the Earl of Derby on being installed Lord Rector of the University of Edinbur

[3] Sons of villains (serfs) not to be ordained without consent of the lord of the manor. (C stitutions of Clarendon, 1164.)

[4] L'ancien régime et la revolution, avant-propos, p. 1. Eighth edition. Paris.

them, schemes were not wanting. What was wanting were teachers who were free from the habits of mind calculated to reproduce the past from which, as M. de Tocqueville says, the revolutionists so desired to free themselves, and with themselves their country. Wild schemes were proposed, such as removing children of 6 years of age from their parents, as was done in ancient Sparta, and placing them in "houses of equality," so that all might receive the same education until their twelfth year.[1] Another proposition still more absurd was to modify the French language in such a way as to make it more in keeping with the "language of liberty." The laws of the first French Republic regarding public education were of no avail, nor did the first empire, its successor, when establishing the system of education called the University of France, pay the least attention to the education of the common people, whom the Emperor probably deemed a nation of barbarians, to be civilized by the conscription,[2] as Henry VIII would educate them, by apprenticeship.

The third nation to adopt a system of education as a method of social control and pliability was Prussia. Her second and third kings modified the system of Leibeigenschaft (literally "personal property") into Erdunterthänigkeit (serf to the soil) and endeavored by cabinet orders in 1738 and 1749 to prevent the use of the whip upon the person of the agricultural peasants in order to stimulate their industry. The condition of the Prussian peasants may be expressed in the language of one who says that they were contented, "The peasant always belongs to somebody."[3]

In 1807, after the complete overthow of Prussia and the treaty of Tilsit, the minister Hardenberg was ordered by the King to draft a plan for the reconstruction of the Prussian State. In Hardenberg's plan it is laid down that the abolition of serfdom must be decreed briefly and immediately, and the laws which prevented the peasant from passing out of the peasant class and restricted office-holding to the nobility and relieved that body of taxation must be repealed.[4] Hardenberg being driven from office by Napoleon, the edict of emancipation was promulgated five days after Stein became minister, though not fully consummated until, to use Stein's language, "Chancellor Hardenberg's love of innovation led him in 1811 to transform the relations of the landlord and peasant class, in which I (Stein) had no share." But though Hardenberg's love of innovation induced him to make some of the late serfs small proprietors at the expense of the nobility, it was Stein who, seeing the effect of the religious and patriotic spirit which inspired the resistance of the Spanish peasants to Napoleon,[5] adopted the idea set forth in Fichte's address on the necessity of national and religious education of the people—the conception by them of the nation as the embodiment of the will of God—and armed with this idea he started the war of liberation. This idea, being successful in freeing Germany, survived and became more and more the idea of the Prussian Government—the idea which must guide in preparing for national defense.

INDIVIDUAL INSTINCTS AND SOCIAL UNITY.

In the preceding matter several facts have been brought into relation in order to illustrate the manner in which the European world at different epochs of its history has sought to secure the permanency of the social institutions peculiar to

[1] Allain, L'oeuvre scolaire de la revolution, 1789-1802.

[2] Michelet's remark to Matthew Arnold. Culture and Anarchy: Doing as one likes, p. 45 New York edition. Cf. also the Emperor's remark to the Austrian Prince Metternich: "A man like me troubles himself little about the lives of a million men." Metternich Memoirs.

[3] Covaignac, Formation de la Prusse, p. 62, quoting Marwitz, a man learned in feudal law (un féodal).

[4] Seeley, Life and Times of Stein, vol. 1, p. 375. The exclusive privilege of filling public office and posts of honor belonged to the nobility in Germany and in anterevolutionary France.

[5] Seeley, Life of Stein, vol. 1, p. 352; also the character of the address of the Russian commander to the Germans (instigated, of course, by Stein), vol. 2, p. 139.

the epoch. As far as the rural, and therefore very much the larger, part of the population is concerned, we have found that the Roman villa was the center of the agricultural life, then the baronial or manorial hall, modified in England by the administration of itinerant courts, and finally, either compulsory apprenticeship or school attendance. In the following section it is intended in the same brief manner to examine into certain impulses in human nature which may be supposed to be a source of constant danger to any social system which, through its government, strives to perpetuate itself by the exertion of the powers which have been conferred upon that government for the purpose.

It is evident to those who consider themselves authorized by experimental study to speak of the emotions experienced by the child[1] that the first feelings that it manifests are expressions of wonder and fear. These emotions are the natural instruments of its future intellectual growth, and at an early period of its subsequent mental development it is never so contented as when assured of security by association with its fellows and amused by a constant change in the objects presented to its senses. The love for spectacular amusements, of engaging in games of chance other than those played with nature, and for bestowing and receiving praise does not interest us here, as our object is to inquire what motive may be supposed to induce an otherwise contented man to seek centers of quick exchange and rapid circulation of money.

It would be difficult to find a business that as a business requires greater sagacity and physical exertion and withal more dependent on the element called luck than the business of farming.[2] Before the invention of marine insurance probably the merchant's ventures were as hazardous if not more hazardous than those of the farmer, but insurance has not taken risks on the probabilities of the agricultural weather during six months of the year, of the destruction of the crop by injurious insects, or of profits which are dependent upon conditions that will happen between the time the crop is planted and its harvest.[3] All these risks the farmer is compelled to take if he enters the world of competition, and unless he have a very deep insight into a futurity that is constantly becoming more ambiguous by competition, it will too frequently happen that his fertilizing material and his labor are expended in vain. Such, in general, seems to be the difficulty, especially in cultivating nonvirgin soil which requires manure, and the farmer or the farmer's son, finding conditions at home nonremunerative in an epoch of constantly increasing desires, at first gladly seeks to place himself under the directive power of those who employ labor in cities and manufacturing towns, where he thinks himself assured of remuneration and of relief from care, and perhaps of a "future."[4]

The facts which follow will probably sufficiently illustrate these remarks. The figures about to be given are for 34 cities of the Kingdom of Bavaria at the date of 1871. The cities range from 3,000 to 240,000, and the people in them, all of

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[1] Dr. Preyer, for instance.

[2] "Back to the land!" is a cry to which in former days I have been little disposed to listen. Nearly twenty years ago (1870) close intimacy with the conditions, social and economic, of rural life have taught me that success in agriculture, even on a small scale, demands qualities of head and hand and heart which, to say the least, it is quite idle to expect from a merely miscellaneous company of the loafers and slummers and labor failures of town life. It is too often forgotten by the glib land reformers of our city debating clubs that the efficient agricultural laborer is not in reality the dull chaw-bacon sort of person shown in a comic illustrated paper, but one of the most highly skilled of English workmen. To expect, therefore, that the town laborer who has failed can readily be transformed into the rural laborer who will succeed is to expect miracles.—The Land and the Laborers, Rev. Charles W. Stubbs, M. A., London, 1893, Preface.

[3] In order to promote habits of thrift and economy, the Federal Government of Switzerland distributes yearly a sum of £4,000 ($20,000) among those farmers who insure their crops against hailstorms.—M. G. Mulhall on Swiss Agriculture, Report of Irish Recess Commission.

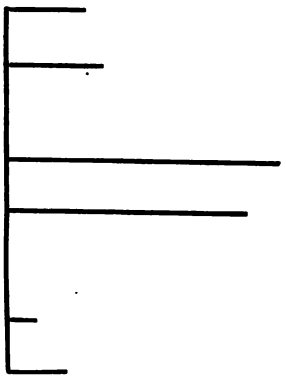
[4] In the London market, from 1872 to 1893, wheat fell 47 per cent, barley 30 per cent, oats 14 per cent, and in Prussia rye fell 13.3 per cent.

whom were born in Bavaria, were 622,988, against 4,740,185 persons born in the entire Kingdom. In other words, there were 622,988 city dwellers in the 34 cities who were born in Bavaria and 4,117,197 persons who were also born in Bavaria but who continued to live in the country. We may now arrange certain facts regarding this city and rural population in the following form:[1]

	Persons.
1. Showing the place of birth of the city population (622,988):	
In every 100 persons living in one of the 34 cities there were—	
(*a*) Born in some one of the 34 cities	57
(*b*) Born in the country	43
2. Showing the migration from the cities as far as relates to birth:	
In every 100 persons born in one of the 34 cities there were—	
(*a*) Living in city in which born	76.4
(*b*) Living in another Bavarian city than in which born	11.3
(*c*) Living in the country or had gone out of the Kingdom	12.3
3. In every 100 persons dwelling in the 34 cities there were not born within the boundaries of Bavaria	6

Thus it will be seen that only little more than half of the 622,988 persons in the 34 cities of Bavaria were born in a city; but this is far from expressing the exact character of the movement from the country to the city. Let us take a country like France, where the birth rate is stationary. In every 100 persons in the city of Paris on one side and all France, including Paris, on the other we find that there were—

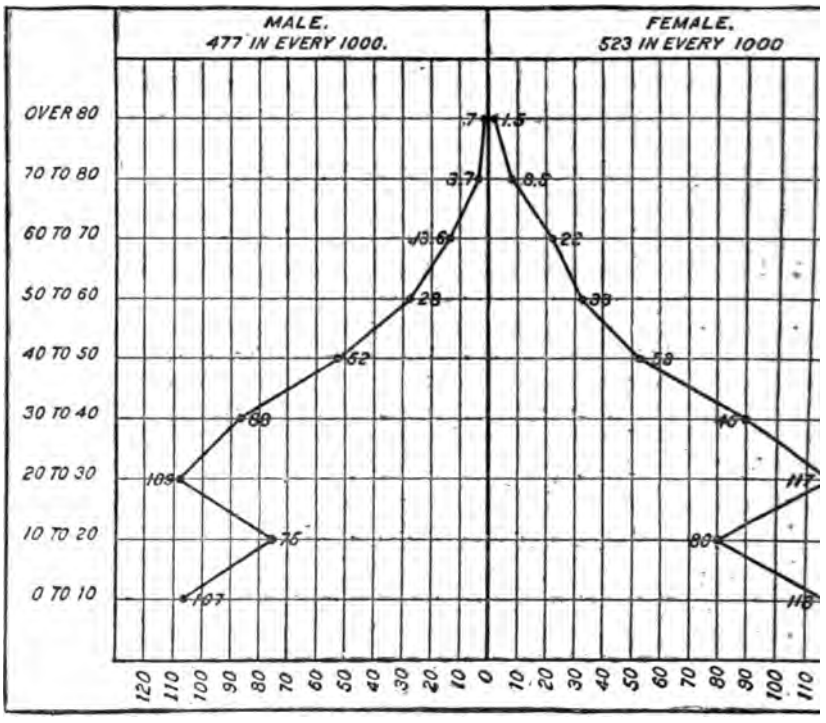
Of children up to 5 years in:	
City of Paris	20
Republic of France	26.7
Of adults from 15 to 60 years in:	
Paris	72.3
France	61
Of persons over 60 years in:	
Paris	7.7
France	12.3



It is immediately apparent how little impeded city life is with the very young or very old. We shudder at the atrocity of the Roman who "exposed" his child; but city life accomplishes the same result by another process, as will now appear. Observe the following diagram. The spaces between the lines that run across the page represent intervals of ten years. The lines that run up and down the page represent an increase or decrease of 10 persons in every 1,000 of the whole population of the city of Berlin accordingly as the line moves away from or toward the vertical heavy line in the middle of the diagram. Observe also that the starting dot and the dot at 20 on both sides the heavy line—that is, for both men and women—are almost in a vertical line. But see how pinched the diagram is at the intervening ten-years dot. These are years of great mortality for children, even of country parents. On both sides of the culminating point of youthful vigor, the age of 20, both for the men and women side of the diagram, the movement of the line shows how attractive to the young man and woman is the life of the city.

[1] The figures are taken from Dr. George Hansen's Drei Bevölkerungsstufen, who quotes them from the census. The writer is responsible for the computations and arrangement.

*Pyramid showing the great excess of men and women between the ages of 2(
30 in the city of Berlin in 1880, and the excess of women over men.*

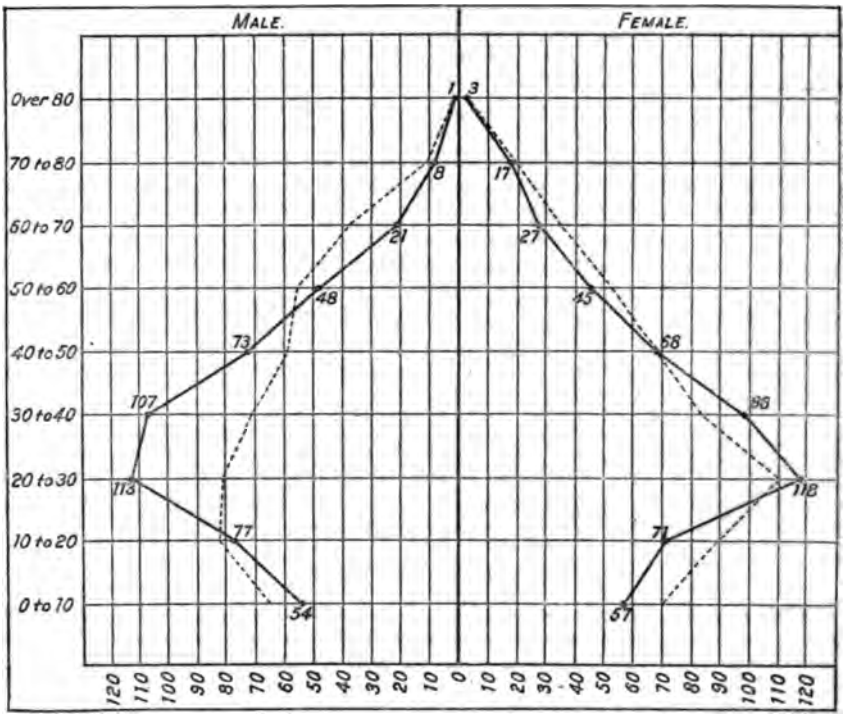


To verify the foregoing interpretation of the diagram for Berlin, let us con the statistics for the large city of Leipzig, remarking, as we do so, how m children over 5 years come into the city, and also the in-rush of those about age of 20. The sum of the two "total columns" equals 100, likewise also sum of the two "Male" columns.

Of the age of—	Of every 100 children living in Leipzig—					
	There were born there.			There were born elsew		
	Male.	Female.	Total.	Male.	Female.	To
0 to 5	86.5	86.2	86.4	13.4	13.8	
5 to 10	71.3	70.4	70.8	28.6	29.6	
10 to 15	57.5	59.7	58.6	42.4	40.3	
15 to 20	30	32.5	30.2	72	67.5	
20 to 25	14.6	25.7	20.1	85.4	74.3	
25 to 30	16.5	24.5	20.5	83.5	75.5	
30 to 35	19.3	25.4	22.3	80.7	74.6	
35 to 40	17.9	24.2	21	82.4	75.8	
Total 0 to 90	33.9	38.8	36.4	66.1	61.1	

Finally, to call attention to the effect that a demand for unskilled employment at a center has upon the population of the country districts or other centers, the following diagram prepared for M. Levasseur's "Demography of France," is given:

Pyramid showing the great excess of men 20 to 40 in the city of Paris during the epoch of the public reconstruction of the city under Napoleon III in 1856, and the unusual flatness of the male side of the pyramid just after the close of the wars of the first Napoleon. (Scales, every 1,000, as in preceding figure.)[1]



Thus having illustrated the instinct which prompts men and women to sell their services to the highest cash bidder though they are thereby compelled to put themselves in an artificial or dependent condition—a condition, it is to be remarked, that is socially dangerous only when too many have placed themselves in it—it remains to take up the other instinct which, for the purpose of this chapter, may be separated out from among the passions of the human soul which foster dissatisfaction. This instinct is the desire for visible or objective self-effectuation or renown. The individual experiencing the afflatus of this pleasant but tantalizing emotion naturally feels a sense of repression if compelled by fortune to endure the narrow intellectual horizon of his native village and, especially, the few opportunities it offers for the gratification of his desire to unfold the possibilities with which nature has endowed him, either for doing good to himself or his fellows. His experience both in the world of concentrated directive power at business or political centers and in literature is either nil or is far too meager to counteract his thirst for the power and esteem which he thinks he may obtain in the open compe-

[1] There is a slight error here, as the men's side added to the women's = 1,000.

tition of the distant city world.[1] The failures of his acquaintances, if known remembered, are attributed to incapacity, and the successes of others, he flat himself, have been obtained by the exertion of no greater talents than his o Thus the city is filled with the daring, the restless, and, in the long run, with m who are disappointed, and that phenomena occurs which in ancient Rome now in German cities is called the proletariat.

But the foregoing remarks, it must be admitted, are applicable only to the L and Teutonic races of Europe and America. The Slavs of Russia, at least, an exception. So far from industry inducing a permanent drain of popula from the open country of central Russia to manufacturing centers, the v reverse is the case. All that industry has done is to have made the Rus workman a nomad. During harvest time many factories close their doors, those that keep them open pay wages ranged from 10 to 20 per cent higher t the wages paid in winter. The Russian workman is constantly oscillat between the factory and the farm. He prefers the factory to starvation, tha all. Thus it has become aphoristic to say that the Russian workman has not broken up the bundle of early instilled association of ideas that attaches hin the soil.[2] The country in Russia, as elsewhere, feeds the factory, giving it material, and, as we shall see in a moment, human hands to work that mate up. But when it happens, as in Russia, that the flow of human beings to manufactories is merely a tide that quickly ebbs and flows, no permanency be given to industry which falters in an arrested development. In another p of this report the particulars of the Russian rural association are more fu though lightly, sketched and authorities stated.

In concluding these remarks upon the movement of population two instin have been mentioned separately as exerting more or less influence upon migration of the rural population to the city; it is scarcely necessary to say t these instincts are not to be separated except in thought and in the case of Russian whose necessities drag him to what he deems a prison.

SOURCE OF POPULATION.

But beside the foregoing conception of a man as a being actuated by moti which he follows or refuses to follow there is another conception of him wholly the subject of a force without himself which he is constrained to ob This conception is the outgrowth of statistical inquiry, and owes its introduct to M. Quetelet, who elaborated it in his essay upon man.[3] Any statistical pres tation of the question of the rush to the city is therefore an attempt to expl social facts by relating them to physical causes.

By statistics it is shown that more people are born in the country and surv

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[1] "I have, certainly, also had always before my eyes the charms of reputation. Over and ab the money view of the question, I wished from the beginning to be something more than a cl in a post-office. To be known as somebody, to be Anthony Trollope, if it be no more, is to much. The feeling is a very general one and, I think, beneficent. But I confess that my object in taking to literature as a profession was that which is common to the barrister w he goes to the bar and to the baker when he sets up his oven. I wished to make an income which I and those belonging to me might live in comfort." (Autobiography of Anth Trollope.)

"Mr. Rogers (one of the founders of the Massachusetts Institute of Technology), working year after year, in a university that was somewhat remote and apart, came to yearn for stimulus of town life and a more scientific atmosphere, and finally, at the age of 49, resigned professorship at the university in order to join his brother Henry in Boston." Pp. 333, 334, and Letters of William Barton Rogers, Edited by his Wife. Boston, 1896.

[2] Leroy Beaulieu's expression.

[3] Sur l'homme et le developpement de ses facultés. Essai de Physique Sociale, par A. Quet Paris, 1835. Hobbes, however, may have been the first to put up man as the subject of phys laws.

longer, are married at an earlier age, and have larger families than happens in the city. Consequently the soil is ever being called upon to support a larger number of persons, while the cities are unable to generate an urban-born population. Statements so broad require that they should be verified; therefore,

1. More people are born in the country than in the city. This is evident to anyone who will trouble himself to read over the following table: [1]

Country.	Births to each couple during their married life in the—		Deaths among each 100 children under 1 year in the—		Number of illegitimate children in each 100 births, under any condition, in the—	
	City.	Country.	City.	Country.	City.	Country.
Franco	3.16	3.28	35.69	28.56	15.13	4.24
Holland	3.91	4.32	36.25	28.90	7.71	2.84
Denmark	3.04	3.34	29.66	22.68	16.05	10.06
Schleswig	3.50	3.69	27.42	23.42	8.38	6.37
Holstein	3.37	3.88	29.92	25.20	15.50	8.74
Saxony	4.60	4.13	39.88	36.22	15.50	14.64
Hanover	2.92	3.65	28.70	26.47	17.42	9.06
Prussia	4	4.44	36.02	29.47	9.80	6.60

The table shows Saxony to be an exception. It is not only an exception to the diminished birth rate in the city, but it is exceptional in every way. The Kingdom is little more than half the size of Massachusetts, has a population of 3,000,000, of which 20 per cent are engaged in agriculture and about 70 per cent, including servants, in trade or industry. Fifty-six per cent of its people live in places of 2,000 or more inhabitants. Another exception is Norway, at least during the years 1860–1870, and though only one-eighth of its population lived in the seven cities (1880) having more than 9,000 inhabitants, the same fact of an increased number of children born out of wedlock in urban communities is shown by the statistics, for in every 1,000 women from 15 to 45 years of age having children [2]—

	Cities.	Country.
Married women from 15 to 45 years who had had children were	311	301
Unmarried women from 15 to 45 years who had had children were	33	20

2. The rural population live longer. The third and fourth columns of the next to the last table show the facts as regards infants under 1 year of age. Considering the whole body of the people of France, it appears that the mortality for the years 1861–1865 was 26.1 in every 1,000 of the city population and 21.5 in every 1,000 of the rural population, and for the years 1878–1882 the average deaths in the 1,000 of city population was 24.3 and in the 1,000 of country population 20.9, or, to state the matter more interestingly, according to the Statistique Generale de France for 1861–1865 every 3,880 country people furnished 100 births to the population, while every 3,570 city persons furnished 100 births (there being fewer

[1] Which is the work of the late Baron von Oettingen, professor in the University of Dorpat. Evidently taken from his Moralstatistik (which has passed through several editions) by M. Levasseur.

[2] Certain restrictions were laid upon marriage by Canton Lucerne, in Switzerland, to wit, parties must not be upon the poor rates, nor likely to come upon them; nor if they are without money or a vocation, and they must be persons of regular habits. Consequently in Canton Lucerne there were fewer marriages and more bastards than in any other Canton of Switzerland, though the sense of responsibility has lowered the number of early marriages. (The Forest Cantons of Switzerland, by J. Sowerby, p. 111.)

children and aged persons in cities). Arranging those facts in tabular form, w have—

	Population.	
	Rural.	Urban.
Births	100	10
Inhabitants for 100 births	3,880	3,5
Deaths among these inhabitants	83	9
Excess of births over deaths	17	

In Sweden it is officially ascertained that the average age at death was, for—

Men.

	1861-1865.	1866-1870.	1871-187
Towns	23.3	24.8	25.
Rural districts	30	33.5	34.

Women.

Towns	28.4	29.9	31.
Rural districts	34.5	37.4	38.

For England and Wales, Dr. Farr has endeavored to show the influence of town life on the death rate of the working classes 35 and over. The table shows that if 2,000 persons over 35 were taken (1,000 living in country and 1,000 in city) that fewer of the 1,000 city people would be alive at the end of fifty years than of the 1,000 country people. For instance, if the supply from below were stopped it would require 3.1 years to remove all the persons over 85 in the country and only 2.4 years to remove all those over 85 in the city. The figures follows:

Died in every 1,000 working [men] between the ages of—	Country.	City.
35 to 45	9	a 1
45 to 55	12	1
55 to 65	25	2
65 to 75	55	6
75 to 85	148	17
Over 85	324	41

a It will be recalled that in the diagram of Berlin's population by age and the figures for Leipzig that 20 is the age of people who flock to cities, bringing with them the vigor of the country. If the city-born population only were counted, the figure would be larger.

Finally, let us take the death-rate statistics of Scotland:

Deaths in every 1,000 people in—	Cities.		Small towns.		Country.	
	Men.	Women.	Men.	Women.	Men.	Women.
1871	30.4	27.9	21.4	20.6	16.7	16.
1880	25.8	22.7	20.7	19.7	16.6	16.
1886	21.9	20.2	18.3	17.9	15.9	14.

3. The people marry earlier in the rural districts. This is sufficiently well indicated by the column of the table on page 1005, showing the greatly increased number of children born to unmarried couples in the cities, despite the ready conveniences of city life. But some allowance must be made for the fact that the

city is a refuge in which the mother can conceal her shame. But overmuch stress should not be placed on this fact, for at Munich, Vienna, and Prague one-half of the births are illegitimate (Von Oettingen[1]); at Paris, Copenhagen, and Brussels one-fourth; at Edinburgh and Milan one-tenth, while at London only one twenty-fifth (3.9 per cent) are born out of wedlock. Besides, as we are not here concerned with the relative sexual morality of city and country, but only with the increase in population, the birth in the city of children of immigrating and unwedded country girls is not favorable to the city birth rate any more than subsequently to its morality. In Sweden it is shown that women cease to bear children (or die) sooner in the city than in the country, to wit:

Age of mothers in the case of 10,000 births (1875).

Age.	Rural.	City.
Under 18	21	25
18 to 20	115	135
21 to 25	1,378	a1,555
26 to 35	4,993	5,338
36 to 45	3,315	2,818
46 to 50	180	86
Over 50	3	3
Total	10,000	10,000

a This does not bear out the contention of the text that marriages are earlier in the country than in the city. The birth rate of Sweden is slightly higher in towns than in the country. The question is, of course, how many mothers were country girls and how many city-born girls.

Compare with the foregoing the more elaborate statistics collected by Mr. Kiaer, director of statistics for Norway, and based upon 133,587 births during the years 1874, 1875, and 1876, furnished by the pastors of congregations of the Lutheran Church, which exclusively predominates.

Number of births in wedlock in each 100 families in Norway.

[The figures express the annual average, based on the years 1874, 1875, and 1876.]

Age of husband.	Age of wife.								Average number of births to 100 husbands between the ages indicated.
	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	
15 to 19									27.0
20 to 24		53.4	48.9						49.5
25 to 29		50.3	45.1	40.1					43.6
30 to 34		52.6	42.4	37.2	32.8	19.1			37.7
35 to 39			41.3	34.6	31.7	19.7	4.6		30.3
40 to 44			30.2	33.1	29.4	19.9	4.9	0.29	22.5
45 to 49				32.0	27.5	17.1	4.6	.36	12.8
50 to 54							3.9	.13	6.3
55 to 59							2.6	.09	2.6
60 to 64								.08	1.36
65 to 69									.66
70 to 74									.38
75 and over									.20
Average number of births to each 100 wives between ages indicated	41.9	51.9	43	36	30	18.1	3.3	.16	19

Compare with the above table,[2] in which it is so conclusively shown the greater

[1] Quoted by Levasseur in "La Population Française," v. 2, p. 400, note.

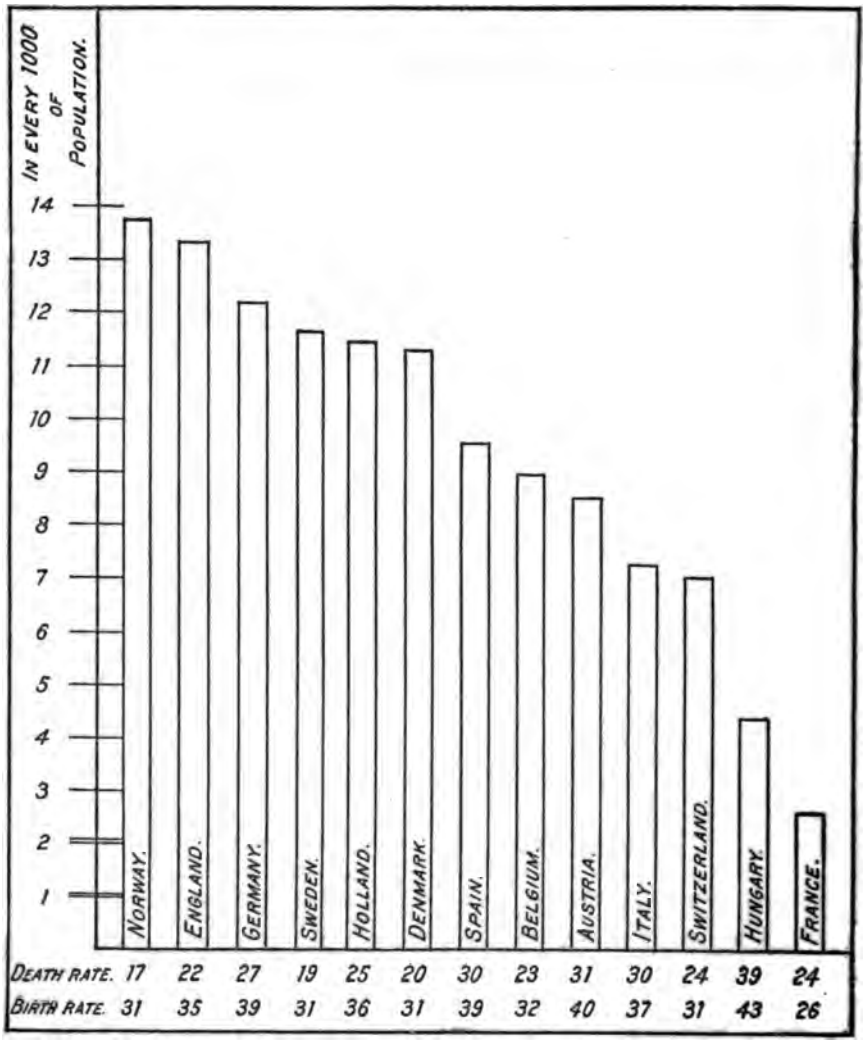
[2] Which it is thought is not difficult to understand. Thus, in every two marriages where the woman is 20 to 24 and the man 20 to 34, there is sure to be 1 child, the chances being 51.9 in the 100 marriages. Where the woman is 25 to 29 and the man 20 to 44, the chances are 9 per cent fewer, namely, 43 in the 100 marriages, and so on.

fecundity of early marriages in the late-maturing climate, and a small city population of the Scandinavian peninsula, with the record of the age of marriage in the Department of the Seine (Paris and its environs).

Age of Marriage.

Department of Seine.	1861-1865.		1885.	
	Men.	Women.	Men.	Women.
City population..	30 years 8 months..	26 years 2 months.	29 years 7 months.	25 years 8 months.
Outside population in department.	29 years 11 months.	25 years 8 months.	29 years 3 months.	24 years 8 months.

Table showing the average annual difference between the death rate and birth rate of western and central Europe during the period 1861–1880, according to the registrar-general of Great Britain and Ireland. (45 Rept., 1884.)

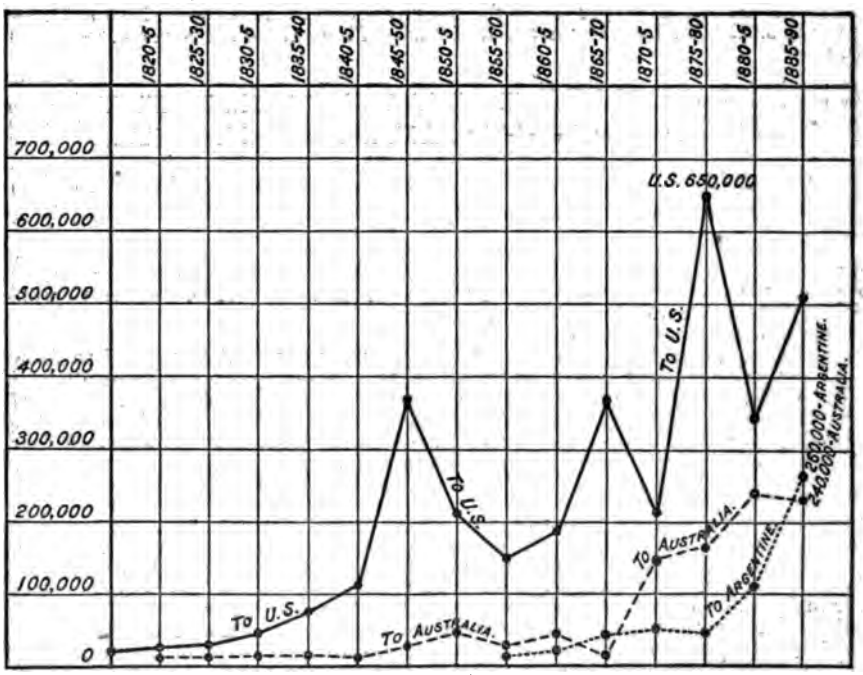


4. The rural family is larger than the city family. If more children are born to a man and wife outside of a city than are born to a similarly connected couple in it, and fewer die in youth in the country than in the city, it certainly follows that the rural family must be larger than the city family. Bearing in mind therefore that increase is made by the rural family, the statistics of the registrar-general for England, shown on opposite page, will show how the countries of Europe have overcome their own death rate, that of the cities, and the loss by emigration.

It only remains to show more particularly how it has been possible for Europe to furnish the United States 15,000,000 of people during the period 1816 to 1888, and 8,000,000 more to other parts of the world, in addition to increasing the size of the city population at home.

Emigration from Europe to America and Australia during 1820–1890.

[The spaces between the lines drawn across the page represent 100,000 emigrants, the zigzag showing the fluctuation from five years to five years.]



Average annual gain of population in Europe from 1830 to 1880 (Mulhall and Levasseur)	9,550,000
Average annual loss to Europe by emigration 1851-1888 (Mulhall)	500,000
Remaining in Europe and crowding to its cities	9,050,000

The diagram will illustrate the course of this emigration, or, as the French and Germans say, the fluctuation in the movement of the population.

From these remarks upon the character of the cooperation in past times of intellectual deadness to produce good government and the necessities of life, and upon the conditions which cooperation at the present day must satisfy as to human aspirations and fecundity, it may appear that the United States is merely a vast colonial enterprise undertaken by European colonists. Such a conception is manifestly unjust, for pari passu with the landing of the promiscuous peoples that disembark on the Atlantic Seaboard a school system has been amplified for the purpose of reducing the collected individuals to a homogeneous mass. Although

all this vast tide has been poured onto the territory north of the Potomac and Ohio and west of the Mississippi, there yet fails to be any indication of a new element having been introduced into the "American" that Webster congratulated his audience on being in 1820. It is very doubtful if there has been as much change in America as there has been in England; certainly not as much as has taken place in Germany or in political circles in France. There is loud complaint of agricultural distress in America, but in the German Empire, by the report of the statistical bureau, nearly 5 per cent of the population, or 771,005 persons, were without employment in the month of December, 1895, as shown by the following table:

In the German Empire there were in June, 1895, 300,000 persons out of employment, and in December, 1895, 771,000. These persons are divided into five classes:

Class.	June.	Per cent.	December.	Per cent.
A. Agriculture (laborers, renters, foresters, fishermen).	38,538 (13,441 women)	0.67	208,797 (106,481 women)	3.61
B. Mining and smelting	167,009 (26,851 women)	2.57	301,471 (45,321 women)	5.96
C. Business	37,310 (5,836 women)	2.50	58,482 (7,851 women)	3.86
D. Domestic service	49,821 (32,466 women)	2.81	103,918 (55,618 women)	5.81
E. Public service	6,674 (2,165 women)		8,337 (2,156 women)	
Total	299,352 (80,749 women)	1.89	771,005 (217,427 women)	4.86

EFFORTS TO RELIEVE AGRICULTURAL DISTRESS BY COOPERATION.

Cooperation in agriculture, as here discussed, is limited to the effort of producers to overcome the difficulties, each as an isolated farmer experiences in disposing profitably of his goods by joining with persons of the same trade. As such it is an effort to insure by force of numbers an adequate remuneration to the whole company against the inequalities produced by inferior mental aptitudes and want of universal opportunities for making lucky hits, which, being so few, create a great noise, arouse spurious hopes, and eventually produce much ruin. It is a very difficult task to bring about the unity of many people in the transaction of business for a considerable length of time, and in the foregoing an attempt has been made to show how troublesome the task is by depicting the efforts of European society to satisfactorily distribute its population into mutually serviceable parts, and how now it has engaged in the work of inculcating, through education, a spirit of unselfish devotion to the welfare of the native land, for the welfare of the nation is, separately from money making, intimately connected with that of the many.

Though at the present day the self-help theories of Schulze-Delitzsch are not secure from sneers, nevertheless the so-called people's banks (Vorschussvereine) of Germany and other countries of Europe are based upon his scheme. He, the so-called father of cooperation, would sweep out of existence the restrictions placed upon trade by the guilds or workingmen's unions which had survived in Germany to his own time (1850), though in England they had been savagely attacked as early as the reforming era of the Tudors, and had collapsed both in England and in France about the era of the American Declaration of Independence.

In 1858 Judge Hermann Schulze stated his programme to be:

At the outset the association will have to be carried on with a certain reticence, because the destruction of the old trade associations is not sufficiently complete, the building ground is not yet so far cleared of the débris of the old system as to enable us to proceed with complete freedom with the work of construction. Besides, we have to fight with the tendency to separatism peculiar to German people, to whom the loss of isolation appears to be a loss of independence, whereas in truth independence is only secured by the hearty cooperation of the once isolated units. Therefore, it seems best to begin with purely economic associations and

trade associations of a very limited character, which assure to members the conditions of a desirable activity of trade without as yet associating them for the carrying on of the trade itself, which will, on the contrary, be carried on by each individual, as formerly, for his own exclusive advantage. Only when the extraordinary power of the principle of association has thus been brought before their eyes and has made them sensible to and ripe for the higher steps in its application, only then should one gradually go on to build up with their help great cooperative undertakings, still guarding against overhasty and inconsiderate attempts, which have generally failed.[1]

As far as Judge Schulze's plan affects agriculture, which was not its original object, an agricultural union not being established on his plan until 1866, it is considered in the last report of this Bureau, at page 1239, to which may be added the dictum of Baron William von Humboldt:[2]

Reason can not desire for man any other condition than that in which not only each individual enjoys the most absolute freedom of developing himself by his own energies in his perfect individuality, but in which even external nature is left unfashioned by any human agency, and only receives the impress given to it by each individual of himself and his own free will, according to the measure of his wants and instincts, and restricted only by the limits of his powers and his duties.

I.—COOPERATIVE IRRIGATION.

The most important effort at agricultural cooperation in America is the collection and distribution of water for the purpose of irrigation. The largest extent of territory artificially irrigated outside of China is the arid region of the United States. Irrigation there has had a checkered career. The early inhabitants of California had appropriated the gold found upon the public lands and in the streams that traversed them, and about 1865 or 1870 speculators in agricultural lands also appropriated the flow of water of convenient water courses. The riparian owners below the place where a creek or river had been turned from its course appealed to the courts, which, in the famous case of Lux *v.* Haggin, decided that the English common law applied to the conditions in California, and that no riparian owner, at the place where the water course passed through or by his property, had the right to divert a whole river into a new channel for the purpose of raising the value of some large tracts of property he was interested in, "dear at 5 cents, to an auction value of from $25 to $100 an acre."[3] The aquatic appropriators, having been shown the impropriety of their action in not consulting individual rights in making "public improvements," soon came to reason, and in 1880 an act known as the Wright irrigation law was passed by the legislature of California. As this act is apparently about to become the basis of whatever efforts are made to redeem the 500,000,000 acres of public lands situated in that region of the Rocky Mountain plateau, where streams are fed in spring and summer by the melting snow banks on the mountain peaks, its provisions and history require attention.

In 1880 State Engineer Hall, of California, stated that he had arrived at several conclusions, and among others—

(1) That the State should not construct irrigation works.

(2) That the State should establish a business basis for enterprise in irrigation projects.

(3) That the cost of works of irrigation should be borne wholly by the lands to be irrigated in each instance.

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[1] The professional organization of French agriculturists has been completed by the creation of unions or federations of syndicates which are designed to bind together local groups to facilitate their functions and to concentrate their scattered forces, so as to lay before the public authorities a spontaneous and weighty expression of the wishes of the rural population. (Compte de Rocquigny, proceedings First International Cooperative Congress, p. 354.)

[2] Sphere and Duties of Government.

[3] John Bonner, in Overland Monthly, vol. 13, p. 604; Warren Olney, in same, vol. 9, p. 43.

The Wright law was drawn in conformity with these principles, and, as a law based upon the common or State ownership of natural waters and upon the ownership by communities of works for the storage and distribution of water for irrigation purposes, is now in operation in nearly all the arid States.[1]

The Wright law provides for the formation of a quasi body politic and corporate to be known as an irrigation district. This body must be composed of not fewer than fifty (or a majority) of the owners of land susceptible of one mode of irrigation from the same source and by the same system of works. They shall present a petition to the county board of supervisors, setting forth their plans and presenting a bond double the cost of the work they intend to do. If the board grant the petition and accept the bond, it shall divide the district into five divisions of equal size, and in each such division a director shall be elected by the people, or on being petitioned the board may order that three or five directors be elected by the irrigation district in its entirety. The question is then voted upon by those having the right to vote in State elections, and if two-thirds or more of the electors vote for the establishment of the district, it shall be legally constituted. By a majority vote the district may issue bonds, which are payable 5 per cent at the expiration of eleven years and 1 additional per cent each subsequent year until the twentieth. The bonds and interest at 6 per cent are paid by an assessment upon the real property of the district, and all property is pledged for the payment of the bonds.

The operation of the law was impeded. "It is the gloomy misfortune of California," says Mr. John E. Bennett, "that by far the greater part of her land area is owned by persons who, for the most part, do not even reside within the State, and it was expected by the framer of the act that this class would make trouble."[2] The anticipation of trouble was realized in the case of a woman, a nonresident land owner, who in 1894 brought suit against the Fallbrook Irrigation Company in the United States courts on a question as to the right of the State to organize an irrigation district, and the decision was in the plaintiff's favor; that is, she could not be taxed through her land. This decision was overruled by the Supreme Court of the United States in the latter part of 1896, and the Wright law stands.

II.—JOINT INTEREST IN LAND OF FARMERS AND LANDLORDS.

There is another form of what may be called physical necessity of cooperating (the smallness of an element being considered in regard to the largeness of the demand for it) and that is cooperation in cultivating land belonging to a person who may or may not be himself a cooperator in cultivating that land. Thus in China, which is essentially an agricultural community of over 400,000,000 of people, the land is owned by the State, which rents it at a uniform figure, irrespective of the improvement made by the farmer who controls and transmits his holding. In Great Britain there is the landlord-and-tenant class of organization, which in Ireland has produced, it is generally conceded, most lamentable results, for there "the insecurity of the tenant's possession gave him the alternative either of doing nothing to better his farm or of bettering his farm without bettering himself."[3] But the reformation of the Irish system was effected by the application in 1870 of the tenant-right system, which had grown up in the Province of Ulster, to the other three provinces of the island. This tenant right of Ulster gave a fixity of tenure to the farmer and also an interest in the land he cultivated, which interest he could sell to another who wished to take his place. The extension of this local custom to the whole of Ireland was as great an innovation in English legislation as was Hardenberg's interference with the Prussian system of land holding at the

[1] Emory F. Best, Assistant Commissioner United States General Land Office, in National Geo Mag., "The Utilization of Vacant Public Lands."

[2] District Irrigation Movement in California.

[3] Robertson, professor Roman law, University of London, in Art. Landlord Ency. Brit. ninth edition. Cf. McCarthy, History of Our Own Times, Vol. II, p. 472, New York edition.

beginning of the century, the prostrated condition of the country to be benefited seemingly leaving no option to the legislator. In this way there is recognized a certain ownership on the part of the tenant as well as on that of the landlord,[1] and the condition of the middle ages is restored, but in favor of the tenant, who is a freeman and is a cooperator with the landlord in possessing the soil and no more an operator—operaius, as the serf was called in mediæval Latin.

In England several attempts have been made by landowners to experiment in the line attempted by the Government of Mr. Gladstone in 1870 and 1880. The earliest and most successful of these is known as the cooperative farms at Assington. In 1830, fourteen years before the commencement of the enterprise of the Rochdale pioneers, the idea suggested itself to a Suffolk squire (Mr. Gurdon, of Assington Hall) that he would attempt to apply, by way of experiment, the principle of cooperation or copartnership to a farm; selecting 60 acres of land of medium quality, furnished with a rough but not unsuitable homestead, he formed his little company of shareholders, all of them taken from the class of farm laborers, to which he gave the name of the Assington Cooperative Agricultural Society. The number of the original shareholders was 15, who put $15 a piece into the concern by way of subscribed capital; the landlord, to give his bantling a chance for life,[2] liberally advanced to the cooperators the sum of $2,000, without interest on loan. The society grew and prospered. The land occupied increased from 60 acres to 130, and the number of shareholders was enlarged from 15 to 21. The present value of the shares is, to use the language of the bailiff (manager), "all of $250." All years have not been equally remunerative, but there has not been any one since the concern started without some little matter to divide. The company have repaid the landlord all the borrowed money, and for all the stock and implements on the farm, which are now their own. The rent of the land is (in 1867) $1,000 a year, the company paying tithes, rates, and taxes. The land is farmed on the four-course system, and ordinarily employs five men and two or three boys. The members (who must be laborers of the parish) are not bound to work upon the farm, but it is understood that if a cooperator is out of work elsewhere he has a claim to employment before any other man. When a cooperator works on the farm, he is paid wages at the usual rate, and if he be inefficient there is no scruple about discharging him. The affairs of the concern are managed by a committee of four, but the practical direction of the farm rests with the bailiff, himself a cooperator as well. Illiteracy is no bar to serving on the committee, yet if a man be not thought sufficiently intelligent he will be refused when his turn comes. The first experiment apparently succeeded so well that in 1854 Mr. Gurdon started a second, which was equally successful as the first until the late strain of bad seasons impaired, if not destroyed, its prosperity.[3]

III.—COOPERATION IN PRODUCTION.

Having thus exhibited two forms of agricultural cooperation to obtain elements which are limited in supply by nature (being land and water) we may turn to the consideration of cooperation in agriculture to provide at remunerative prices those articles which are only limited by the satisfaction of the necessities of human existence.[4]

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[1] McCarthy, op. cit., Vol. II, p. 478.

[2] It is scarcely necessary to remark that all of this account is given in the pleasant language of the Bishop of Manchester in making his report as assistant commissioner of the agricultural commission of 1867.

[3] The Land and the Laborers, Rev. Charles W. Stubbs, fourth edition, London, 1893, p. 126. Mr. Stubbs tried an experiment on his own land at Granboro Vicarage, Buckinghamshire, England, which proved successful.

[4] There are many cooperative insurance companies in the United States by which farmers reduce the cost of insuring their buildings, but of these there is no occasion here to speak.

"However various the circumstances of the countries of the Continent of Europe," says the report of a recent committee for the improvement of the condition of agriculture in Ireland, "it is a striking fact that we find the same main principles adopted by them all in promoting agriculture, which may be summed up in three words,—organization, representation, education." By organization the committee mean what is here called cooperation and, as they observe, the subject is receiving wide attention. The following is a compilation of reports and statements that the organization of this cooperation has brought out.

(*a*) ECCENTRIC ASSOCIATIONS.

Societies for the purpose of cooperation in agriculture must be separated from those which in the past have owed their structure either to a deep religious feeling, so noticeable in rural communities, or to a disgust with the conventions of middle-class life; for the people who lay the ground plan of such associations are only content when they have isolated their converts from the insufficiently religious world or from the forms current in polite society. Of societies of this description it is not the intention to speak, as we are wholly concerned with persons (possibly mere abstractions) who are willing from pure business motives to voluntarily form a pool or trust for their own benefit by selling in the dearest market and buying in the cheapest. Such an object is in no way connected with religious worship and can not be expected to be cemented by religious belief. It is a mere matter of business interest and must be upheld by the ability of each cooperator to see his own financial good or safety bound up with that of his fellow cooperators, to be contented with nonspeculative profits and mediocrity, and to be willing to work. All these requisites are excessively trying to the nervous system, as was pointed out several centuries ago in a panegyric on the downfall of the little industrial republics of Italy by Machiavelli.[1]

(*b*) THE SYNDICATES OF FRANCE FOR PURCHASING MANURE AND FOR MAKING BUTTER AND CHEESE.

Societies for the aid of agriculture may be divided into three classes—for buying, for selling, and for growing for sale, or for any two or all of these purposes. To these must be added the associations for procuring credit already spoken of in Chapter XXVI of the last report of this Bureau.

The strongest body of agricultural cooperating societies is that of France. They are called by a name well-known in America, syndicates, "Syndicats agricoles," or, in English, agricultural trusts. What is said of these syndicates is merely an abridgment of what is so well compiled by M. le compte de Rocquigny in his "La cooperation de production dans l'agriculture," under which he includes the purchase of fertilizers and machinery, the rearing of animals, and the sale of the productions of the farm.

The 1,500 agricultural trusts of France are founded on the general law of 1884, which allows persons working at the same trade or calling to associate freely for the study and the protection of their economic, industrial, commercial, and professional interests. Some of these societies embrace a whole department (county?), others limit their activity to a township or a parish. The syndicate of agriculturists of Vicune, at Poitiers, and several others have from 8,000 to 10,000 adherents. It is estimated that 200 agricultural syndicates have over 1,000 members each, and that the actual total of syndicated agriculturists is about 600,000. The chief object of agricultural syndicates is the study and protection of economic agricultural interests, which means not only the general welfare of agriculture,

[1] The Prince, cf. Gray's ode to "Vicissitude:"

"Mark proud ambition's march sublime
Up to Power's meridian height,
While pale-eyed envy sees him climb
And sickens at the sight."

but also the special interests common to the members of each association. "The individual efforts of isolated husbandmen, especially if they be small cultivators, are powerless to put down the coalition of adverse interests and to insure themselves a just remuneration for their labor," says M. Rocquigny. It would thus appear that the 600,000 syndicated farmers in France are united for regulating the course of business in that country with no other check than the moderation of their leaders and the opposition of other trade combinations similarly portentous in numbers.

The soil of Europe is far from being a virgin soil. It is said that the Chinese in their garden farming neither impoverish the soil nor buy artificial fertilizers. It is not so in France, and the most serious outlay of syndicate money is for nitrogenous, potassic, or phosphatic fertilizers. The syndicate of Vienne, for instance, buys annually about $200,000 worth, and so on. The influence of the syndicates on the market has been such that "phosphatic manures, for instance, have fallen from 40 to 50 per cent," if produced in France, though the price of imported mineral manures has not been affected. To this reduction of the price of home-manufactured fertilizers must be added the enhanced value of the stuff which was formerly abominably adulterated. Well may M. de Rocquigny say that "the monopoly of those manures was in the hands of traders and agents not always over scrupulous, who took advantage of the ignorance of the peasants to make them pay dearly (say four times the value?) for manures which were wanting in fertilizing power." French manufacturers, it is said, find compensation for honesty and limited profits in a sale increased threefold.

The second great source of expenditure of the agricultural syndicates of France is the purchase of machines to be loaned or hired. These are generally plows (either ordinary or subsoiling), fertilizer distributers, seeding machines, horse hoes, presses, rollers, thrashers, fodder cutters, etc. These instruments are placed in the depots where the fertilizer is stored, and are loaned out at a small charge or even free of charge to the members who desire to use them. This feature is probably one of the great causes of the growth of the syndicates. The thrashing machines are hired out at from 50 cents to $1 a day; in other cases the grain is drawn to the place where the machine is kept and there thrashed, at a cost of 5 cents a 100 pounds, or for 2½ or 5 cents a hectoliter, according as the syndicate or the owner does the work, and so on for the other instruments. The syndicates of the vine-growing districts provide for their "adherents" apparatus for wine making on scientific principles, that would be utterly beyond the purse of small culturists. Sometimes large cultivators combine to procure steam-power-moved machines, and sometimes contracts are made with individual owners of machines to do the work for the members of the syndicates at reduced rates.

There is an effort to secure mutual action among these syndicates. For example, the vineyards destroyed by the phylloxera are best rehabilitated by replanting them with native American grapevines. These were held at such high prices and so much fraud practiced that about one hundred syndicates started nurseries of their own to supply their members either gratuitously or at a smaller price than the vines could be purchased in the market. Thus, the Syndicat Agricole et Viticole de Jujuneux was at first simply a group of ninety-seven vine growers who cultivated for their common benefit a piece of ground planted with American vines, in order to replant their individual vineyards with grafted stock (*Vitis vinefera* on the American stock). In 1893 this association became a professional syndicate, and 150,000 plants grafted by professional persons were distributed in November, 1894. And so on for irrigation, but this last is nothing to be compared to what has been spoken of as done under the Wright law a few pages back.

A very few syndicates, e. g., the Vine Growers' Association, are also used as a means of alleviating distress. For instance, if a member of the syndicate of Thenay falls ill or is hurt, or becomes infirm (empêché par maladie, blessure, ou

infirmité), the active members are, either themselves or by another, obliged to do the necessary work upon his vines, according to the order of the "bureau." Then, again, a very few syndicates are "benevolent societies," as we call them in America. All these syndicates are open to anybody, or, as the French say, "mixed." Proprietors, farmers who rent, farmers on shares (métayers), and laborers all may belong; but the fact is that it is rare to find a laborer belonging to the syndicate. A certain number of syndicates only admit proprietors, and a certain number of syndicates are organized by the laborers to prevent the members of the other syndicates from beating them down to starvation wages and imposing long hours of labor.

Before passing to the subject of cattle raising a word must be said of a very remarkable function, for which a few syndicates have been formed. The Maybug (*Hanneton* or *Melolonta vulgaris*) is a particularly unwelcome visitor in France. The larva of this insect lives upon the roots of plants, and in the spring of the third year comes forth as a beetle. When we find in the canton of Gorron a "syndicat de hannetonnage," we understand that it is no more a producing but a destroying syndicate. One of the 16 syndicates for exterminating hannetons killed 300,000 pounds of the bugs (?)[1] in 1889, and 250,000 pounds in 1892. The destructive and collective inclinations of school children are utilized in this work of prophylactic agriculture. There are also half a dozen syndicates for the destruction of harmful insects, one especially concentrating itself upon "the fly Lyda, which ravages fruit trees," and there are 20 syndicates "for the defense of grape vines against frosts" by means of "artificial clouds," smoke, etc. It is understood that some vine-growing syndicates have made arrangements whereby they can insure themselves against late spring frosts.

There are quite a number of French societies for the rearing of cattle, but that subject will be more fully spoken of under Switzerland's contribution to cooperation where cooperative cattle breeding is at its highest development, as will appear.

The other great object of cooperative production in France is dairying. This is placed, by M. de Rocquigny under the head of "the industrial transformation of products," the transformation of grass into flesh and of scrub stock into good grades being considered a natural rather than an industrial operation. But, however it may be properly classified, it is the world over the most successful form of agricultural cooperation. Listen to M. de Rocquigny's eulogy of that inestimable friend of the farmer, the cow: "In the face of the continuance of the depreciation of the value of every agricultural product cattle have remained the great resource of our cultivators. The bovine race especially, thanks to the merit of our native races, and thanks to our care for them, gives us products that are constantly increasing in value." In his Milk Industries, Professor Lézé, an authority on this subject, remarks that a farm producing 100 quarts (100 liters) of milk should get about 6 pounds (3 kilograms) of butter, representing a value of $1.20 (6 francs), not taking account of the value of the manipulation and transportation to market. On the other hand, if the 100 liters be sold immediately, a return of $1.60 (8 francs) is secured and the labor and transportation saved. Fortunate is it, then, says M. de Rocquigny, that by "collective fabrication" a farmer may raise the value of his milk from $2 to $2.40 for each 100 quarts fabricated. This "collective fabrication" or "cooperation in production" has particular reference to the industrial treatment of milk put in common by the cooperators and assures the best utilization of it possible. The object of this branch of French cooperation is butter and cheese making at a creamery.

The organization of a cooperative dairy is very simple. A group of proprietors having the required number of cattle agree to furnish all the milk from their cows to a proposed establishment, which is built and furnished by the aid of

[1] "The cool nights of spring render this beetle rather torpid and it can be collected in great numbers."—Gustave Henzé, Art. Hanneton.

money either borrowed or subscribed by the associated parties. It is conducted by a manager and a council of administration, who are assisted by a commission of control (executive committee). The receipts from the sale of butter pay for the milk used after taking out a part of the receipts to cover the general expenses and sinking fund. The value of the milk delivered by each cooperator is determined according to the monthly sales of butter, which is a rigorous application of the cooperative principle. In 1888 there were two cooperative dairies in France, and in 1896 there were nearly one hundred.

The great center of butter-making factories is in the region of the Charantes and Poitou, a region much devastated by the phylloxera. The funds necessary to the organization of a factory (purchase of the land, buildings, and machinery) are about $8,000 or $10,000 for an average-sized dairy. Some societies do not have piggeries attached, and some allow their members to make their own butter. The factories sell the butter through the regular channels of middlemen, generally auctioneers. They are not "syndicated" for selling, but only for producing. The butter thus sold in Paris is known as "beurre des Charantes" and amounted to about 6,384,362 pounds in 1893, according to the city statistics. The amounts obtained from the sales are daily turned in to the banks of the Société Générale, which credit the departmental agencies in the neighborhood of the factory. The dairies too distant from such agencies of the Société Générale are addressed weekly by a letter of exchange. The price obtained varies from 32 cents, or even 36 cents, a pound in winter to 18 cents or even less in summer. The average is generally about 25 cents a pound the year round. The packages are about 22 pounds (10 kilograms), plus 200 grams for good weight. The expense of transportation, including the octroi (cost of being allowed to come into the city), and of selling is not quite 4 cents a pound.

It is considered that a cooperative dairy should be able at the lowest to count on about 2,000 quarts (liters) of milk a day. The ordinary general expenses—salaries, coal, oil, packing cloth, etc., and taxes, insurance, transportation, care of material, etc.—are covered by a reserve of from 9 to 15 per cent, derived from the sale of the butter. The director rarely receives more than $200 a year, and must give bond and does not "participate in the benefits." Other employees are an engine driver (mécanicien) and one, two, or three butter makers, who receive from $120 to $240 per year, according to their ability and the value of labor in the locality. These positions, which are very much sought after, are sometimes put in "adjudication," a method not very proper to guarantee ability in those who get the position in that way, so it is said.

The milk is collected at the home of the cooperator by those who contract (entrepreneurs) to do that work. They are called laitiers or tourne-lait, and give bond and receive pay according to the distance. Some of the associations have gone into the business of insuring cows.

Butter making is one form of dairying, cheese making is another. The cheese factory, which the French call by the name of "fruitery," is the oldest form of agricultural cooperation, for it was instituted by the peasants dwelling in the Alps as early as the thirteenth century. At first the cheese maker went around with his outfit to each member of the society, very much as the owner of a reaping or thrashing machine puts himself and his apparatus at the service of a number of farmers for "a valuable consideration." But subsequently this "tacite association," as M. de Rocquigny calls it, was made a de facto society, governed by general laws. The cheese maker was installed in a house, the manufacturing became "sedentary," and was regulated by a council. "In our day," continues M. de Rocquigny, "the organization of the cheese factories has been greatly improved." This apparently has been done by means of instruction, and the following account of a cheese-making school will be of interest:

"Cheese-making schools," says M. Friant, their inspector, in the report upon

agricultural instruction in France, "are establishments rationally organized in which students are admitted to perform all work relative to the utilization of milk in a scientific manner." These schools are managed at the risk and peril of the cheese-making association. The course is limited to one year, and the instruction is free; but each school has two fellowships of $80 [each?]. The State pays the professors, and the association meets the cost of the other necessities of the school. The theoretical instruction comprises elementary instruction and instruction in the chemistry and industry of milk and animal physiology. This theoretical instruction consumes eight hours a week, two for the common-school studies, six for the technical. The practical instruction is the doing daily the work of the cheese factory—making cheese and butter, care of the beehives and piggeries. In addition to this, there is an analysis of milk once a week. There are eight of these schools in France, with two exceptions founded since 1888. The cheese-making factories number 1,983, more or fewer. The sphere of activity of these cheese-making (always taking the word "fruitière" in its dictionary meaning as a mere synonym for "fromagerie") syndicates may be illustrated in the case of the syndicate of the cheese-making factories of the Jura (mountains), of which M. le Marquis de Froissard is president. This is truly a professional association of cheese makers. The object of the association is to protect the common interests of the makers of Gruyère cheese, to see that good cheese makers are selected for the factories, to guard against the jockeying of buyers who wish to get rid of their contracts when the market is falling, to prevent frauds on the part of the cheese makers, to audit accounts, etc.

Other syndicates "of production" are not wanting. There are syndicates for vinification (making wine), for panification (baking bread), grinding cereals, distilling alcohol, making starch, fabricating olive oil, putting up preserves, and making perfumery, the object being to prevent the transformation of raw material into a less raw material by completely manufacturing it at home, thus minimizing at least one of the difficulties that statisticians have in computing the "wealth of a country."

The sale of agricultural products is considered by M. de Rocquigny as the last process of agricultural production, and upon this subject he makes these remarks:

> The agricultural syndicates very generally have proposed to themselves the accomplishment of the sale of their products just as they have brought about cooperation in the purchase of fertilizers, etc. The programme has been to prevent the sale of products below the cost of production and to prevent the artificial depreciation of the market. The means to accomplish this are le groupement des offres and the guaranty of authenticity, by opening new markets, by the suppression of useless middlemen, and by the current of direct transactions thus instituted between the producer and the consumer. But the great difficulties in the way have been recognized. The syndicate is not able to operate commercially, to make and receive binding propositions, to contract for actual delivery (traiter pour des disponsibilités assurées). Its rôle is limited to that of a bureau of information for the buyer and the seller. From this arose the idea of annexing to the syndicates certain institutions organized in such a fashion that they may accomplish what the syndicates can not.

As an agency constituted in this way seems to have the power of subjecting the consumer of agricultural products to the same burdens that the manufacturers of fertilizers in France subject the farmers, and against which combinations the farmers protested, as related on page 1015, no particular mention can be made of it here.

(c) The Object, Organization, and Development of the Cattle-Raising Societies of Berne, Switzerland.

The authority consulted in compiling the following matter is Mr. J. von Wattenwyl-Elfenau, the president of the society whose work is now to be considered.[1]

[1] The Bureau is indebted to Mr. Eugene Germain, United States consul at Zurich, for many documents concerning and illustrations of the cattle raised by this association.

Mr. von Wattenwyl in his report, the first of the kind, to the united Bernese societies, makes these observations:

If we examine the history of agriculture, we find an extraordinarily long-drawn-out development. The son inherited the methods as well as the farm of his father. For generations there was scarcely a change. Thus it was for our time that a change should be made. A general and increasing tendency to intensive culture has spread over Europe. A better acquaintance with the laws of nature and especially the development of competition have completely revolutionized agricultural production. The ease with which grain can be transported caused its cultivation to be neglected in populous Europe and to take colossal development on the broad steppes of America, Russia, and Hungary, which have thus become the granaries of Europe. But the population of Europe continued to increase and industry grow, and as the channels of commerce increased it became necessary for agriculture to produce such crops as would pay a higher interest on capital and labor. From this necessity there arose in Switzerland the business of milk farming (Milchwirtschaft), which is dominated by the idea of the highest possible intensive production of fodder and likewise the highest possible intensive valuation of milk (Sie giptelt in einer möglichst intensiven Erzeúgung von Futter und in einer möglichst intensiven Verwertung der Milch). This is possible to those living near cities, but to others less favorably situated cheese making and condensed-milk manufactories were more remunerative. But there is a fourth means, and that is the rearing of cattle, the really original source of what may be called an intensive milk supply.

Such is the reasoning of the originator of the Bernese societies. There are now at least 184 of these associations in Switzerland. Mr. von Wattenwyl has no scruples about expressing his opinion as to the amount of personal freedom to be accorded to the members of a cooperative society for raising cattle. In organizing such a society the fundamental idea which must permeate the whole body of members is that the will of each individual must be unconditionally subordinated to the will of the organization in those matters where the object of the organization, and consequently its interests, are at stake. Nevertheless the organization must limit its interference with the personal freedom of the members to the most necessary occasions. "It scarcely needs to be pointed out," says Mr. Wattenwyl, "that the formation of a cooperative cattle-raising society will not instantly put a stop to foreign competition in the grain market, nor will it create a flourishing milk industry. The organization as a whole must closely cling to this object: Improvement of the stock gradually but intensively." In short, the contention is this: The Swiss Alps produce the best cattle of Europe. Let them be purchased by foreigners, still the breed of Alpine cattle will degenerate upon the plains of Austria, Germany, and France, and it will be necessary to come to Switzerland, as in the beginning, to procure the blood that is made by the grasses of the elevated valleys and slopes of that precipitous land.

The Berne Cattle-Raising Association, for rearing spotted cattle, is composed of Swiss citizens, who associate themselves for the purpose of protecting and advancing their interests in every particular (nach allen Seiten hin), both at home and abroad, and especially for improving the business of cattle raising. Its authorities are an assembly of representatives and a board of directors, which bodies together elect a president and other directors, who, in addition to the president, are a vice-president, a treasurer, and two members. In addition to these it appears that there is a committee of experts, composed of three members and two assistants, chosen from among the most experienced of the members, who are compelled to act when chosen. This committee selects and buys the bulls and passes upon their register. They also go round inspecting the animals registered to see if they are being properly cared for.

(*d*) GENERAL STATEMENT OF COOPERATION IN GERMANY.[1]

Cooperationists in Germany are divided into two parties; one, organized under th name of "Federal Union of German Industrial and Economic Societies" (Allg meiner Verband deutscher Erwerbs- und Wirthschaftsgenossenschaften), an the other under the name of "Union of Rural Associations of Germany" (Gene alanwaltschafts Verband ländlicher Genossenschaften für Deutschland). Th difference between them is that the first follows the ideas of Schultze-Delitzsch an the other those of Raiffeisen, as explained at pages 1239–1241 of the report prece ing this.

The aims of the cooperators on the Schultze system are these: The furtheranc of cooperation in general, the development of the constitution and the institutio of allied societies, the protection of common interests by united efforts an resources, the formation of mutual business relations between societies. In fac the "union" is a means for the interchange of the experience gained, for counse and help in any case of attack or difficulty which may embarrass individual socie ties, for the powerful union of their strength, for the prosecution and maintenanc of common interests, for defense and unity in the face of threatening situation and dangers, for the formation, finally, of business relations among its members The union defends the interests of associations publicly, by word and in writing to an extent which makes even associations not affiliated to benefit by its action The business of the union is directed by the "Anwalt," who is elected by the asso ciations at their annual congress. The most powerful attack made upon thi organization was made by Ferdinand Lassalle, who demanded the founding o "productive societies" by state help. The union is founded on the idea of self help and a sort of general pooling of the individual interests of the insignificant in a financial sense, members of the community.

The Reichstag—the federal legislature of the German Empire, corresponding t our Federal Congress—has taken upon itself (in 1889) to regulate these societies which were thereafter required every two years to submit their accounts an records to the scrutiny of an independent and expert auditor. At this point w must leave these associations and the political management and oversight of thei affairs and examine briefly into an outgrowth of another organization of them o the Schultze system, called the Federal Union of German Agricultural Societie (Allgemeiner Verband deutscher landwirthschaftlicher Genossenschaften), whic must be kept separate from the Raiffeisen combination of societies, whose name amounts to the same thing. Perhaps it will aid to separate if a table be made o membership, etc., of each.

Credit associations.

	German agricultural societies, 1894 (Schultze).	Union of rural associations, 1893 (Raiffeisen).
Number of societies	463	71
Membership	51,551	68,02
Paid-up-share capital	$527,098	$114,40
Reserve	$315,282	$59,12
Assets	$11,818,811	$8,183,08
Liabilities	$11,733,689	$8,164,93
Outstanding loans		$5,016,80

It will be seen that there is quite a difference between the amount of the reserv fund. In the Raiffeisen societies it is not quite $1 to a member; in the Schultz societies it is over $5. The paid-up-share capital indicates a like difference. In

[1] Based on the reports of Dr. Hans Crüger, of the Schultze-Delitzsch system, and of Dr. Cre mer, of the Raiffeisen system, both appearing in report of First International Congress o Cooperation, 1895.

the Raiffeisen societies it is about $2 for each member; in the Schultze societies it is about $10.

Other statistical data (for 1894) concerning the character and operations of the Schultze agricultural societies may now be added.

Raw-produce associations (buying concerns).		Cooperative dairies (selling concerns).	
Number	422	Number	288
Members	22,099	Members	11,196
Cost of goods purchased	$3,778,626	Paid-up share capital	$346,370
Business capital	$150,906	Gallons of milk delivered	32,509,515
Reserve	$79,915	Plant	$1,997,357
		Cost of management	$360,270
		Net profit	$57,102

Milk was supplied to members at a slight reduction from market price.

The societies on the Raiffeisen idea of decentralized self-help seem rather to look to the State (at least, so it is charged by Mr. Cruger, of the rival or Schultze concerns[1]) for financial encouragement where such societies are feeble, or where the State wants them to increase, as in Switzerland and Belgium.[2] But there is another cause, according to the Belgium minister of agriculture, that has promoted the increase of the Raiffeisen banks. The clergy in central Europe, both Lutheran and Catholic, have worked for them, and in 1890 the Catholic Congress pronounced warmly in their favor, and that church gained control in Italy of a system of Raiffeisen banks started by Sig. Wollemborg, or, to use the words of Sig. Enea Cavalieri, of Italy (a Schultzian), "Wrested from the hands of Wollemborg the banner of the rural banks."[3] Sig. Wollemborg had started them. Mr. Mulhall adduces another reason for the progress of these associations or "rural banks:" "Belgians have not been slow to perceive that their money is turned to better account in this matter under their own eyes than by investing it in remote securities."

We are here particularly concerned with a feature of the Raiffeisen system in Germany that is of a more distinctly "cooperative" cast than association for procuring credit—that is to say, cooperation more in line with the meaning of that word as used in this present report. Connected with the central Raiffeisen association or union there is a trading firm which negotiates the common purchase of coal, feeding stuffs, manures, machinery, etc., and which recently has "with very great success," begun to grapple with the difficult problem of common sales of agricultural produce. That trading firm is, like the central bank, a joint stock concern, but with very few shareholders. Independently of the purchases made directly by local associations, this trading firm has in the last two years purchased for and supplied at cheap prices to the union 22,681 tons of artificial manure, 4,707 tons feeding stuffs, 119 tons seeds, 5,430 "trucks" of coal, and about $13,000 worth of machinery; in all, representing about $730,000 worth of goods. Several local centers have put up common warehouses for the storage of agricultural produce and have (independently?) succeeded in negotiating common sales. The mere organization for distributive purposes, existing as a matter of course in the union, has been found to provide facilities for the disposal of produce—potatoes, vine poles, hops, etc.—in localities where such articles happen to be wanted. "The movement is still in its infancy," says Director Cremer.

[1] Report of First International Cooperative Congress, p. 290.
[2] Mulhall, in Appendixes G and I of Report of "Recess Com." on Industrial Condition of Ireland.
[3] Report First International Congress, p. 147.

(e) THE "ALLOTMENT SYSTEM" OF ENGLAND.

While St. Simon, in 1817, was applying the English doctrine of utilitarianism t take the place of Locke's social compact idea, urging, in his book on "Industry, that man is a social being so long as his interests are common with that of others and that industry is the cementing principle of society, Robert Owen was wonder ing how much benefit his 2,000 hands received from the wealth that he and hi partner, Jeremy Bentham, the father of utilitarianism, were making from th machinery used in their factories at New Lanark. To Mr. Owen, the great man ufacturer, is due the idea contained in the dictum that the users of machinery ar growing rich while the workmen are growing poor, and the term socialism, whil the science of sociology apparently is an outcome of the theory of the Count d St. Simon, to say nothing of his connection with positivism and the worship o humanity as developed in the works of M. August Compte. Owen's attempt a forming a cooperative settlement at New Harmony, in Indiana, failed, and so di his movement in England, and after saying that it was necessary to find some lega means of putting farmers on equality with merchants, manufacturers, and other in regard to borrowing money, and that the industrial class (including agricul turists) was the only useful class, the whole St. Simonean movement went down in the overthrow of the second French Republic, in 1848. To both men is due th honor of calling attention to the survival of the fittest in industry, which is now as much debated as Darwinism was in 1860. But instead of evolution we now have sociology.

We have seen that the English Government (that Government so often reproached with laisser faire) began a huge system of the support of the poor about the beginning of the seventeenth century (1601), and it was not slow to take up the cause of the agricultural laborer at the beginning of the nineteenth, when it became necessary to correct the evil of pauperizing the whole lower stratum of the agricultural population on one side and depriving it of commons on the other. The remedy proposed to keep this class of cottagers "buoyant and industrious" was allotments of small pieces of land to the cottages rented by the agricultural laborer. The practical Cobbett, in his Rural Rides, notices the benefit to the laborers of good gardens, especially in the southern counties:[1] "There you see that most interesting of all objects, that which is such an honor to England, and that which distinguishes it from all the rest of the world, namely, those neatly kept and productive little gardens round the laborers' homes, which are seldom unornamented with more or less of flowers. We have only to look at these gardens to know what sort of people English laborers are." In 1819 an act of Parliament empowered the church wardens and overseers of any parish to purchase or take on lease any suitable portion of land and to let such portion of land "to any poor and industrious inhabitant of the parish," to be occupied and cultivated on his own account; and in 1843 a committee of the House of Commons reported very favorably upon the system, and in introducing a bill into the House of Commons Mr. Cowper remarked that "since 1800 no fewer than 2,000 inclosures of commons (public land) had passed and tho' the acreage was not set forth in the returns, it must form no inconsiderable portion of the land of the country. Besides this, the consolidation of small farms so extensively adopted during the war with Napoleon had contributed to deprive the laboring man of his opportunities of holding land. The breaking up of the system of leasing for life also had the same tendency. The result of the combined causes was that, until the allotment system was revived, the English laborer was severed from all connection

[1] Quotations are taken from the fourth edition of Rev. C. W. Stubb's The Land and the Laborers; Facts and Experiments in College Farming and Cooperative Agriculture, London, 1893; History of the Allotment System.

with the land." What Mr. Cowper particularly valued in the idea of the allotment system was the moral effect upon the holder. The management of a garden was an important ingredient in his happiness. But he afterwards added that at least a generation must pass before there would be room for the idea. In 1887 an act was passed called the allotments act. There were in 1890, 455,005 allotments. The main provision of the act is that any six registered parliamentary electors or ratepayers living in the district in the case of towns, or living in any parish of a union in case of the country, may bring the question of the need for allotments before the sanitary authority, which, in rural places, is the board of guardians. If the sanitary authority are of opinion that there is a demand for allotments and that they can not be got on reasonable terms by voluntary arrangements they are directed, by purchase or hire, to get suitable land and to let it in allotments to persons belonging to the laboring population. Public meetings may be held upon the subject. The act does not apply to shopkeepers, assistants, or clerks. In this connection the account of an experiment by Mr. Stubbs, a rector of Buckinghamshire, England, may be of interest:

At the close of the year 1873 [says the vicar] I divided a portion of my glebe land [land under his control as rector], 22 acres, into half-acre allotments, among my parishioners, at an annual rental of 66 shillings [$16.50] an acre. I retained two lots—that is, 1 acre—in my own hands. I have worked it on exactly the same method of husbandry as that of the remaining allotments. That is to say, as it was heavy clay land, not over well drained, but sloping for the most part to the south and west, the kind of crops we grow are wheat, beans, oats, potatoes, mangel-wurzel, carrots, garden vegetables, etc. Now, being interested in collecting what facts I could as to the results to be gained from small as opposed to large culture, I have kept accurate accounts during some years of the outgoings and incomings on my 1-acre farm, and this has been the result: In the last six years of agricultural depression (1878–1884) my net profit on the acre, after allowing fully for rent [$16.50] and taxes, seed, labor, and manure, has been £3 8s. [$16.46]. Let me give in a tabulated form an abstract of my balance sheet from 1878 to 1883:

[£=$4.84; s.=about 25 cents; d.=2 cents.]

Year.	Outgoings.			Incomings.			Net profits.		
	£	s.	d.	£	s.	d.	£	s.	d.
1878	10	0	6	16	6	0	6	5	6
1879	13	18	6	15	1	0	1	2	6
1880	11	18	3	15	6	6	3	8	3
1881	12	7	5	16	1	0	3	13	7
1882	12	3	4	13	15	0	1	11	8
1883	12	13	4	17	4	6	4	11	2
Total	73	1	4	93	14	0	20	13	8

Summary.

	£	s.	d.
Average annual capital employed per acre (outgoings)	12	3	6½
Average annual incomings	15	12	4
Average net profit, or something like 28 per cent on the capital invested	3	8	9½

It may be, perhaps, useful to give the full balance sheet for a fairly typical year. I will take 1881, because in that year one of the leading agriculturists in my neighborhood, Mr. W. Smith, of Woolston, did me the honor to criticise publicly my results, and I can thus give his criticism and my reply.

Here is my balance sheet for 1881:

Outgoings.

	£	s.	d.
Wages of labor	6	7	9
Seed, etc	1	3	8
Manure	1	10	0
Rent and taxes	3	6	0
	12	7	5

Incomings.

	£	s.	d.
Wheat, 5 sacks [20 bushels] from half an acre[1]	5	0	
Potatoes, 55 bushels, at 2s	5	10	
Potatoes, 12 bushels, damaged and sold for pig food		6	
Wurzels, 30 cwt; carrots, 3 cwt	1	15	
Beans, 5 bushels	1	0	
Straw, 1 ton	2	10	
Total incomings	16	1	
Total outgoings	12	7	
Net profit per acre	3	13	

And here is Mr. Smith's criticism (newspaper clipping):

There are a few items very questionable. Take potatoes, said to have been sold at 2 shillings per bushel. Why, I bought fine potatoes last autumn at 1s. 6d., and the market has been clogged ever since. Now, take straw at £2 10s. Why, I bought a lot last autumn delivered home at £2. Now, look to manure; bought £1 10s. for beans and roots, including potatoes. Half his land that must get manured to keep on under such a cropping would need 10 tons of London dung yearly, which, at 6s. 6d. per ton at the railway station, would cost quite 8 shillings per ton on the land, or £4 for the half acre. These three items corrected stand thus:

	£	s.	d.
From 55 bushels of potatoes, at 1s. 6d	1	7	6
From 1 ton of straw		10	0
Extra for manure	2	10	0
Now I must put in interest of money on £12		12	0
Total	4	19	6
Loss	1	5	11
Mr. Stubbs's balance	3	13	7

Mr. Stubbs must show a better balance sheet, or it is of no use for him to come out to show us how to farm. We can not all buy cheap dung, neither can we all sell dear potatoes or dear straw, and tenants' capital ought to bear interest [probably meaning the interest on the "outgoings"].

The following is my reply:

In the first place, let me say at once that of course I am quite prepared to allow that my balance sheet would be valueless as an example of average results if it can be proved that I am farming under exceptionally favorable circumstances of purchase or sale. But this is a contention which, it seems to me, Mr. Smith has signally failed in proving. He asserts, it is true, that I sold my potatoes too dear and bought my dung too cheap. But where is the proof of this? I put down my potatoes at 2s. a bushel. Mr. Smith says I ought to have put them down at 1s. 6d. Why? Because he bought potatoes at that price last autumn. But I was giving the results of my farming, not of his. And I contend that 2s. was a fair "times price" about here for potatoes of my sort last Michaelmas. I know several laborers, at any rate, who sold their potato crop from the same field [the 22 acres he had let out in one-half-acre parcels] at 2s. 6d. a bushel, and more than one got 3s. But for my part I do not argue from that that they were exceptionally lucky in their sale. I only suppose that my tenants were a little better tradesmen than their landlord; they were more successful, in fact, in acting up to that business maxim of selling in as dear a market as you can and buying in as cheap a one, which, I suppose, from his argument, Mr. Smith does not accept.

So again as to straw. Mr. Smith says a ton of my straw is not worth £3 10s., because he can buy straw delivered home at £2.

In reply I would say that not only did I get that value for it, but I knew that my purchaser was giving the same price elsewhere, and that other of my laboring tenants sold their straw at the same price, to be fetched away, to the regular dealer, and therefore, I suppose, to be sold again at a profit. Moreover, one of my tenants who has only just thrashed his corn has been lucky enough to sell it at £3 10s. And then Mr. Smith must know very well that straw off of my allotments is straw, and not straw, couch grass, and thistles.

Then again as to manure. Mr. Smith says I want 10 loads of London dung at £4 to keep my land in good heart. I reply, Why in the world should I buy 10

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By the way, on this question of manure I should much like to ask Mr. Smith, who, I am told, is a practical man, two practical questions.

First. If he considers 10 tons of London dung the fair allowance per acre for farming land once a year, what does he think of the farming operations of his neighbors hereabouts whose land, I venture to assert, seldom gets more than 5 loads to the acre once in even three or four years; and

Second. What is the special agricultural advantage of the large dung heaps by the roadside, which I so continually see left subject to the action of the wind and rain for weeks, with all the best of the ammoniac liquid, assisted by neatly cut channels especially devised for the purpose, draining away for the fertilization of the weed crop of the nearest ditch?

The criticism of practical men [adds Mr. Stubbs] is always valuable, but the following remarks made by two other critics in the year 1883 were not quite so easy to answer as those of Mr. Smith. The first remark was made by the son of a farmer (I am glad to think no parishioner of mine) to the man who is good enough to act as bailiff (manager) of my 1-acre farm: "Why, what a fool you be, John, to let your parson get anything off his land." And the second remark was made to myself by an ingenious member of the capitalist class: "By Jove, Vicar, what a good plan this of yours is to raise the rents of the land!"

Mr. Kebbel, in his Agricultural Laborer (second edition), after saying that the English "yeoman sank into a peasant and the peasant into a pauper under the influence of the inclosure acts of public commons and the growth of large holdings," goes on to say that—

Of the practical utility of the allotment system, apart from its justice in some places and its moral benefit in all, doubts were entertained, but they have now ceased. On the first introduction of the allotment system early in the present century it met with the most violent opposition, not only from the farmers, but also from the clergy and landlords, though it is only fair to say that some of its earliest and most ardent supports were clergymen. The farmers feared that they would no longer get the same amount of work out of their men if these had their own grounds to cultivate. It was also thought probable that they would be tempted to steal seed, straw, and potatoes, and that they would fall behind in rent. None of these apprehensions appear to have been verified, at least to justify dwelling on the argument. While cultivating his potatoes, his turnips, and his wheat, to say nothing of fruits and flowers, the laborer is merged in the husbandman and begins to understand for the first time what is meant by the dignity of industry.[1]

Quite in contrast with the English system is the Russian system, where the serf has not yet become wholly yeoman, peasant, or pauper, but seems to be lingering in a condition that is hostile to industry of all kinds except those hereditary predispositions which prompt him to do the labor necessary to preserve the family clan.

(*f*) The Agricultural Family of Russia.

The fundamental difference between the Russian workman and the workman in the eastern parts of Europe is that in Russia all are more or less countrymen,—tillers of the soil. The workingman who follows a trade is generally a member of a rural community, and his work at his trade is a work carried on to supplement that of the plow, to which he hopes finally to entirely devote himself. Many facts support this assertion, says Mr. von Schultze-Gaevernitz, who has studied this subject and from whose work the matter of this statement is taken. For instance, the sum of the wages paid workingmen is 10 to 20 per cent higher in summer than in winter, notwithstanding which there is a decrease in the number of workers during the summer. In the weaving factories of Moscow and Vladimir, even in case of force (même en cas de presse), only 70 or 80 per cent of the personnel employed in winter are retained through the summer.[2] Indeed, the majority of the factories close their doors during harvest time. Even more than this, the

[1] The Agricultural Laborer, second edition, pp. 106, 107, London, 1893.

[2] Cf. Ianjoul, "La Vie dans les fabriques du gouverenment de Moscou," pp. 86-91, an official report.

Incomings.

	£	s.	d
Wheat, 5 sacks [20 bushels] from half an acre[1]	5	0	
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Potatoes, 12 bushels, damaged and sold for pig food		6	
Wurzels, 30 cwt; carrots, 3 cwt	1	15	
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Loss	1	5	1
Mr. Stubbs's balance	3	13	

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The criticism of practical men [adds Mr. Stubbs] is always valuable, but the following remarks made by two other critics in the year 1883 were not quite so easy to answer as those of Mr. Smith. The first remark was made by the son of a farmer (I am glad to think no parishioner of mine) to the man who is good enough to act as bailiff (manager) of my 1-acre farm: "Why, what a fool you be, John, to let your parson get anything off his land." And the second remark was made to myself by an ingenious member of the capitalist class: "By Jove, Vicar, what a good plan this of yours is to raise the rents of the land!"

Mr. Kebbel, in his Agricultural Laborer (second edition), after saying that the English "yeoman sank into a peasant and the peasant into a pauper under the influence of the inclosure acts of public commons and the growth of large holdings," goes on to say that—

Of the practical utility of the allotment system, apart from its justice in some places and its moral benefit in all, doubts were entertained, but they have now ceased. On the first introduction of the allotment system early in the present century it met with the most violent opposition, not only from the farmers, but also from the clergy and landlords, though it is only fair to say that some of its earliest and most ardent supports were clergymen. The farmers feared that they would no longer get the same amount of work out of their men if these had their own grounds to cultivate. It was also thought probable that they would be tempted to steal seed, straw, and potatoes, and that they would fall behind in rent. None of these apprehensions appear to have been verified, at least to justify dwelling on the argument. While cultivating his potatoes, his turnips, and his wheat, to say nothing of fruits and flowers, the laborer is merged in the husbandman and begins to understand for the first time what is meant by the dignity of industry.[1]

Quite in contrast with the English system is the Russian system, where the serf has not yet become wholly yeoman, peasant, or pauper, but seems to be lingering in a condition that is hostile to industry of all kinds except those hereditary predispositions which prompt him to do the labor necessary to preserve the family clan.

(*f*) The Agricultural Family of Russia.

The fundamental difference between the Russian workman and the workman in the eastern parts of Europe is that in Russia all are more or less countrymen,—tillers of the soil. The workingman who follows a trade is generally a member of a rural community, and his work at his trade is a work carried on to supplement that of the plow, to which he hopes finally to entirely devote himself. Many facts support this assertion, says Mr. von Schultze-Gaevernitz, who has studied this subject and from whose work the matter of this statement is taken. For instance, the sum of the wages paid workingmen is 10 to 20 per cent higher in summer than in winter, notwithstanding which there is a decrease in the number of workers during the summer. In the weaving factories of Moscow and Vladimir, even in case of force (même en cas de presse), only 70 or 80 per cent of the personnel employed in winter are retained through the summer.[2] Indeed, the majority of the factories close their doors during harvest time. Even more than this, the

[1] The Agricultural Laborer, second edition, pp. 106, 107, London, 1893.

[2] Cf. Ianjoul, "La Vie dans les fabriques du gouverenment de Moscou," pp. 86-91, an official report.

yield of the harvest directly affects the salary of the factory hands and
persons engaged in industry. If the crops have been large, the peasant posse
enough to satisfy his material needs and pay his taxes has no need to supple
farming by factory work, and the scarcity of hands raises the wages of that
of workmen. If the crops have failed, the plentitude of applications for
diminishes the wage paid.[1] The factory hand looks upon the rural village a
home. When he is forced by his necessities to seek work at the factories, w
he is brought under a régime somewhat resembling that proposed by collecti
socialists or communists, he leads a life of restraint such as a person enroll
the army leads. He has a barrack, poor food, and is watched lest he es
The Russian hates and despises shop work. This feeling is universally prev
among the rural populations.[2] It is the rural association that supports the
and the feeble and brings up the children. The absence of children in the
ment houses attached to the great factories of Moscow and Vladimir is a m
of astonishment to the visitor from other parts of Europe. That sentiment so
acteristic of the English race which is expressed by the word "home" is pr
in the Slavic character in the association of ideas that is engendered by the
liar clanlike organization called by Mr. von Schultze-Gaevernitz "family
ciation" (l'association familiale), and its peculiarity is that it is not based
parentage, but is a true economic association of peasants. Mr. Émile de L
leye speaks for this association. He calls it a family community (la com
auté de famille), and his description of such a community may be of interest

The community of the southern Slav is composed of a large number of build
The principal building is made of wood, is inclosed by a hedge or a palisade
is surrounded by a lawn covered with fruit trees. Here the chief of the fa
(gaspodar) lives with his children, and perhaps another couple with their chil
In the building is the common room where the whole family, 10, 20, 50, or 60,
to eat or pass the evening. In other subordinate structures are chambers for
other members of the family group, and near by the stables, granaries, etc., o
farm. All these make quite an imposing appearance. The more there are i
family the more it is considered that God has blessed the community. Pov
never comes, say these people, to an undivided family. Nevertheless, the
munities never become numerous enough to form a village. There are vill
whose inhabitants have the same name, but they are split up into many hadr
In the case of the people of Croatia I have found three generations united u
the same roof—the grandparents who have retired from work, their children
work, one being the gaspodar, and their grandchildren. The difficulty of fin
employment, the preoccupation to protect the well being of the association
life in common, all are obstacles to too early marriages.[3]

PART III.—METALLURGICAL CONCEPTIONS.

The best distinction that science can make between what is historic and pr
toric in the existence of man is to separate the course of his civilization in
stone and a metalliferous age. The fable of antiquity, born of the hopeful s
which ever prompts man to regret the past and to entertain still more satisfac
conceptions for the future, made the world begin with a happy age of gold, w
passed into an age of iron. But the industrial history of the nineteenth cent
if it has any significance, pronounces emphatically that in more senses than
an age of gold is best approximated through the most varied and unlimited u
iron in its several metallurgic forms. Modern statisticians lack a calculus
will enable them to measure the wealth of England as accurately as the agen
her first Norman king recorded it for his Domesday Book, and no husband
however humble, on visiting the city now removes the glass windows of his d

[1] L'industrie dans la Russie Centrale, pp. 230, 228, 231, 226, 225 of Circulaire No. 12 du Musée S
April 15, 1897.

[2] Cf. Rosenberg, Die Arbeiterschutzgesetzgebung in Russland (protective legislation of
men in Russia), Leipzig, 1895, 114.

[3] De la propriété et de ses formes primitives, pp. 416, 467, fourth edition, Paris, 1891.

ing, as economy required the Duke of Northumberland to do during the reign of Henry VIII,[1] nor are the royal pots and frying pans now classed among the Crown jewels of England, as in the reign of Edward III.[2]

But however lavishly nature has excreted iron ore in every geological period for the accomplishment of an iron age, the successful inauguration of such an epoch in human history has been largely dependent upon the deposits of coal laid down during the Carboniferous period. The inestimable value of these deposits has beguiled many persons into speculation as to the limit of the supply; but while the calculations are issuing from the press, discoveries in other lands modify their conclusions.[3]

Though by no means so intrinsically useful as iron or coal is, yet seemingly indispensable to the progress of civilization, the precious metals are from their rarity esteemed as aids of business and ostentation. To gold and silver may be added the many varieties of minerals, stones, and earths that nature has placed at the disposal of man, either gratuitously or through his skill as an engineer.

Skill in engineering, however, is not a gift of nature. It is due entirely to the accumulated efforts made by men of vigorous will, adequate understanding, and patience to overcome the natural obstacles they encounter in the prosecution of their designs. It is the character of such conquests, after a large number of processes have been accumulated, to permit the disentanglement of what is purely local in them and leave a rule of procedure of general application. If the individual instances are generalized to the highest possible degree, the rules are apt to be more valuable to the student than to the practitioner, and to limit the otherwise untrammeled possibilities of scientific generalizations disconnected from practice the idea of the old German polytechnic, with its courses of lectures, has given place to a scheme of instruction composed of lectures, laboratories, and shops combined. When ships of war were propelled by sails it never occurred to the naval authorities to confine the instruction of a midshipman to lectures on the parallelogram of forces. Such a course would have seemed as odd as to measure a man for a suit of clothes by taking his altitude by a quadrant and from that datum to work out his other dimensions by rule and compasses. From the professorial chair, says Prof. Justus Liebig, the pupil receives an abundance of ingenious contemplations, but, bodyless as they are, nothing can be made of them.[4]

The idea of this engineering skill may be illustrated by the operations of the "general staff" of the Prussian army before and during the campaigns of 1866 and 1870. The staff had nothing to do directly with the charging and firing, the enthusing of the men and holding them to their work, its whole object being to place the Prussian army in situations which would enable it to accomplish the exploitation of the army which opposed its march. To do this, the general staff, the chief of which was General von Moltke, had collected, it is said, all manner of details, topographical and other, which molded and modified the application of military science to the exigencies of the campaign. The Napoleonic strategy, on the other hand, is reputed to have been the heavy concentrations unexpectedly made before detached portions of a bewildered enemy, just as in some cases heavy

[1] The Household Book of the Duke of Northumberland, cited by John Henry Parker in his account of domestic architecture in England from Richard II to Henry VIII, Pt. 1, p. 121.

[2] On the authority of Prof. A. H. Hiorns, in Iron and Steel Manufacture, p. 3.

[3] The Carboniferous period is but one of three periods of the Carboniferous age. The Carboniferous age is but one of the three ages of the Paleozoic era, and the Paleozoic era is but one of the four great geological eras, excluding the present. The Carboniferous period, therefore, is but a small fraction, certainly not more than one-twentieth to one-thirtieth of the recorded history of the earth. Yet during this period were accumulated and in its strata were preserved and are now found nine-tenths of all the coal used by man. The name Carboniferous for the period and coal measures for the strata are surely, therefore, appropriate.—Joseph Le Conte, in Compendium of Geology.

[4] Leibig's Autobiography, Popular Science Monthly, March, 1892, p. 658.

concentrations of capital are made upon mineral deposits with great expectations of profit through impetuous engineering.

As an art, engineering is applied to different spheres of human endeavor, but in all the branches of human industry to which the name is given the language used is mathematics, either algebraic or linear representation. The very colorlessness of such a language makes it eminently adapted to record for practical intellects the facts which are supposed to be free from the ideas and passions of the human soul. Beyond this common language there is much that is common to all the forms of engineering, but each of those forms is based upon a different function. Thus it is the function of civil engineering, in its higher forms, to overcome natural impediments to commerce by carrying roadways high over navigable rivers or over or under mountain tops.[1] The function of the mechanical engineer is to utilize the forces of nature by means of machinery, it being the difference between the genius of a Watt and a Newton. But the function of the mining engineer is to relieve nature of the productions of remote geological ages by following her into the crust of the earth.

In speaking, then, of mining engineering as a science, it appears eminently proper to regard geology as its basis. It has been said that mining engineering embraces three specialties—geology, mining, and metallurgy—the divergence between them not being great.[2] Mining connects the duties of the mining engineer with those of the civil engineer and metallurgy with those of the chemist, but neither the civil engineer nor the mere analytical chemist are called upon to have the geological knowledge and experience that should be characteristic of the mining engineer. Geology furnishes him as a practitioner with the scientific ideas respecting his profession, and while he is a student it is the humanities of his course. The cause of the atmospheric changes that produced the ice or the coal-making ages, the footprints in the Connecticut sandstones, and the imprint of a winged and feathered reptile in the lithographic stone of Bavaria, the casting off of the moon mass by the earth and of its rings by Saturn, are well calculated to excite the wonder, inspire the fancy, and challenge the credulity of any but the dullest or the most restricted intellects.

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[1] The charter of incorporation of the Institution of Civil Engineers, London, defines civil engineering as "The art of directing the great sources of power in nature for the use and convenience of man as the means of production and of traffic in states, both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation, and docks, for internal intercouse and exchange, and in the construction of ports, harbors, moles, breakwaters, and light-houses, and in the art of navigation by artificial power for the purposes of commerce, and in the construction and adaptation of machinery, and in the drainage of cities and towns." In France the title of engineer was given to persons engaged in trigonometrical surveying (ingénieurs géographes), etc.

[2] By Professor Ihlseng, of the State College of Pennsylvania, and hear Prof. W. B. Potter, of St. Louis, who, in his presidential address at the 1888 meeting of the American Institute of Mining Engineers, speaks of a "present need in the engineering profession." There is surely no branch of the comprehensive profession of engineering which calls for so much technical instinct and sound judgment as that relating to the broad fields of mining and metallurgy. There are not many mining engineers but have felt how few constants have been determined in their special branches and in what general terms these must be applied. From the examination to determine the nature and extent of mineral deposit and to utilize the properties of the useful substance this supplies there is no step in the many complex operations in which the scarcity of exact knowledge and definite laws does not magnify personal equation and especially call for the exercise of that sound judgment which comes of keen technical instinct backed by large experience well profited by. How lacking in detail, for instance, is our knowledge of the laws and their complex operations relating to the origin and development of mineral veins, and yet how important such detailed knowledge to the practical results we seek to obtain. With the present means, too, how difficult to formulate the strains and stability of materials met with underground or to determine sufficiently to insure complete control of imprisoned water, gas, the effects of heat, and such conditions as affect economy of work and even the life and health of those who labor in the mines. To Professor Ihlseng the Bureau is greatly indebted for the suggestion that it would be opportune for it to begin to compile information in regard to mining engineering. In doing so it is natural that the pedagogical rather than the business side should be here considered.

This conception of geology as the science of the conditions of being—at least of physical being—seems to have been held by English-speaking peoples, for they appear to have striven to make a school of mining a school of science in which the rationale of the phenomena of the earth and its atmosphere are to be taught as a body of doctrine, as the relics of the literatures of Greece and Rome were doctrinized to the everlasting benefit of the people coming out of the Middle Ages, by Erasmus, Melancthon, Sturm, and the Jesuits during the Reformation and counter Reformation of the fifteenth and sixteenth centuries. But geology as the science of the preliminary conditions of being has not yet reached this unity. The subject was first included in compendiums of chemistry[1] and has now to contend with the "science of evolution," which, like the other sciences, except astronomy, is based upon the present residuum of past terrestrial conditions. It is therefore scarcely necessary to add that geology is here considered in its narrow sense as a practical study in the course of the mining engineer, for its indications are the beacon lights that may warn him from unpropitious coasts in the operation called "mining proper," which has been separated by the Lehigh University into three distinct groups and thus described:

The first group is concerned with the application of economic geology to the needs of the engineer, so that he can study and value mining properties, locate appropriately the necessary plant, and calculate the cost of production. It includes the discussion of faults and the means of finding faulted bodies, and practical problems are presented. The subjects of blasting, timbering, and excavating are taught in presence of actual operations. The second course covers the subjects of underground and surface hauling, loading, stocking ores, pumping, ventilation, hygiene, and mining law. The third course treats of the mechanical preparation of ores by the wet, dry, or magnetic methods, and especially of the preparation of anthracite coal.

It will be observed that this conception of "mining proper" stops short at the mechanical preparation of the ores. For coal and rock salt, if either may be called an ore, this is sufficient, but for the metalliferous ores a further treatment is necessary. An outline[2] of the general methods employed in this treatment is presented, mostly in the language of a distinguished writer upon the subject, to complete the definition of "mining engineering" here attempted.

While ores present a great variety of combinations, three general classes may be recognized by the character of the negative element combined with the metal, to wit, native metals, oxides, and sulphides. The metallurgy of the native metals—gold, silver, copper, which are, however, rarely pure—consists usually in a combination of mechanical and chemical processes. When the ore occurs in a vein, as copper and sometimes gold and silver, the vein rock must be crushed and the metal separated by gravity or mercury or other chemicals. In order of simplicity the metallurgy of the oxides follows that of the native metals. The oxide ores contain the most important metals known, such as iron, copper, lead, tin, and zinc. With the exception of iron, all of these are used pure in the arts, and as ores, with the exception of zinc, are heated or fused (deoxidized) by direct contact with ignited fuel, in what the French and Germans call a high furnace (haut fourneau, Hochofen) and the English a blast furnace. The metallurgy of the sulphide ores is more complicated, and, with the exception of mercury and zinc, the processes employed are in general three, namely: Roasting and reaction, by which the sulphur and oxygen are both removed; roasting for the purpose of desulphurization, and then deoxidation, as in the treatment of oxide ores; precipitation, which consists in melting the sulphide ores with some substance having a stronger affinity for sulphur than for the metal to be reduced from the ore. In this last process the unroasted sulphide ore is melted with iron or iron-works cinder and the fluxes

[1] E. g. Brande's Manual of Chemistry, containing the principal facts of the science, arranged in the order in which they are discussed and illustrated in the lectures at the Royal Institution of Great Britain. Mr. Brande in his preface to the third edition (1830) remarks, "the subject of geology has been entirely omitted, as embracing a variety of details not strictly chemical, and as occupying space which I have now consigned to other matter."

[2] By Charles Kirchhoff, M. E., in Johnson's Universal Encyclopedia, 1894.

necessary to fuse the gangue or rock of the ore. Theoretically a blast furnace i the best for this purpose, but in practice a reverberatory or turtled-backed oven with a broad floor upon which the ore is spread, is used, the hot air being rever berated down upon it as the current of air passes along under the dome-shaped roof

It is rarely the case that a metal can be reduced, that is to say, separated fron the ore by one operation. but in this chapter the metallurgical work of the min ing engineer is arbitrarily made to stop at the stage of the process where th metal is no longer an oxide or sulphide, but notwithstanding the impurities i contains is in the state of a block of "native" copper or a nugget of native gol ready for refinement for commercial use.

There is quite another point of view from which the study of the formation o the crust of the earth and its elements are of interest to the most practical. Thi is the refomation or transmutation of mineral substances. Mineralogy, it i said, "is a science which treats of the substances known as minerals—that is, th constituents of the earth as they actually occur in nature."[1] As the mineral sub stances of the earth are generally supposed to be the cooled products of heat and pressure under past geological conditions modern scientific optimism has not failed to engage in the pursuit so dear to the alchemists of the fifteenth and later cen turies, who sought to change dross into gold and carbon into diamonds with that persistence and infatuation which is so powerfully drawn by Honoré de Balzac in his La Recherche de L'Absolu.[2] M. Stanislaus Munier, sixteen years a professor of geology at the French Museum of Natural History, has written a book upon this subject which bears the the title "Les methodes des synthèse en mineralogie." The merits of that work can not be appreciated here. It is sufficient to remark that the difference between a diamond and a piece of coal as worked out in nature's geological laboratory is no greater than the difference between the pig iron from the blast furnace and the decarburized iron from a Bessemer converter; that is to say, between pig iron and steel ingots.[3]

The foregoing conceptions of the work and the possibilities of mining engineering are of a self-regarding or commercial cast. The gist of the matter in an education conducted on such lines is a contract by the school to furnish business with skilled, intellectual operatives, such as no tool or train of mechanism can ever be. Nevertheless, it may not be too premature to speak of the social value of such an operative, not as a purveyor of goods to the market but as an administrator or advisor of those who administer or watch over national resources. A conception of this kind, if understood at all, may, in a country that has some appearance of being a vast enterprise of European colonization and exploitation, unnecessarily seem so absurd that it is pardonable to dwell upon it.

In Pennsylvania the railroad companies own most of the anthracite coal land

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[1] Bauerman, Systematic Mineralogy.

[2] As was recounted in Helvetius's Brief of the Golden Calf, discovering the rarest miracle in nature, how by the smallest portion of the philosopher's stone a great piece of common lead was totally transmuted into the purest transplendent gold at the Hague, in 1666.

[3] M. Munier thinks that synthesis, in the hands of the practical geologist, may render great services to science, and among others, these especially:

(1) By permitting the formation of types of simple compounds, such as are never realized in nature, but which are valuable for comparing with natural varieties (e. g. Ebelman's crystallization of rubies (spinelles) "who," says M. Chevreul, "by a synthesis, has not only reproduced the crystals of nature formed of silicate of magnesia and the silicate of the protoxyde of iron, but in addition has formed the silicate of magnesia, $SiO_3 3MgO$, which was unknown)."

(2) By completing the series or families of compounds of which the possible members (termes possibles) are not realized in nature (e. g. St. Claire Deville [who first prepared aluminum on a commercial scale] prepared a great number of true apatites taking unnatural bases, so to speak).

(3) By producing perfect crystals rarely found in nature or in amorphous masses for experimental research (e. g. In this way MM. Friedel and Lurasin obtain their material which enabled them to establish the crystalline form and chemical composition of hydrated phosphate of zinc).

(4) By elucidating the circumstances surrounding the formation of different species of minerals and rocks. But this must be done by comparing the artificial ways of producing a mineral (e. g. galena) with that adopted by nature as studied by the geologist on the spot.

and mine the coal, and do so, if not more cheaply, certainly better than individual operators, who endeavor only to get the most and best coal at the cheapest rate, neglecting the smaller and inferior coals, which are never reclaimed, but help to make up the aggregate of the fearful loss per acre of American anthracites.[1] In regard to copper mining, Mr. C. Kerchoff, in speaking of the large increase in the production of copper (1891), observes that it is a matter which is beginning to occasion some comment and is exercising a distinct influence upon the attitude of producers to witness the inroads the present enormous annual production is making upon the reserves of our copper mines. In regard to gold, it is stated[2] that no attempt is made to ascertain the true gold content per ton of the rock crushed, and in consequence the amount that is lost in the tailings or discarded crushed rock is unknown. Though the loss is certainly less than one-third, at which it is sometimes placed, there is still a considerable loss by universal admission.

Mr. Clarence King[3] apologizes for this waste and attributes the neglect of economy and of thoroughness, which distinguish American mining engineering from the best foreign examples, to the "peculiar conditions affecting American mining," which especially require originality and ingenuity, and also "rapidity of execution and the consequent saving of time and interest, for, as a rule, it is true that capital invested in precious-metal mines in this country has always secured quick returns, if any, and investors are impatient of plodding methods."

Mr. King, nevertheless, is free to acknowledge that this Napoleonic strategy has been pushed too far, and better results might have been attained in many instances by more conservative methods.[4] These must originate in the schools.

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[1] P. W. Shaeffer, C. E., work on American Coal Mining in Supplement to Ency. Brit.

[2] By Mr. C. H. Aaron, metallurgist, in Mining and Engineering Journal, August 10, 1889, being based on facts of his own observation, on private communications, and the official report of the State mineralogist of California.

[3] In Precious Metals, Vol. XIII of Tenth Census. The writer regrets that in making these suggestions he had not before him the corroborating remarks of M. Badoureau (Les Mines, etc., p. 44) to the effect that the exploitation of a mine should not be conducted with the view of obtaining immediate results, but should be done én bon père de famille, for it is important to care for the future. M. Badoureau quotes M. Devillaine (Notice sur la Société Anonyme des Houillères de Montrambert et la Bérandière) to the effect that "a mediocre method, if carried out, presents more advantages than a theoretically excellent method imperfectly executed." Also, M. Hermet (Exploitation des couches puissants, Bul. So. de l'industrie minérale de St. Etienne) to the effect that "It is possible to say that every method of exploitation is good if it is regularly and rigorously applied, and if it satisfies these three conditions: Careful and complete utilization of deposits (bon aménagement et épuisement complet du gite), perfect protection of the miner, and reduction in the cost of mining the deposit."

[4] It is suggestive to compare an account of slow Mexican smelting with the above. "We were fortunate enough to find Señor Mateas's principal furnace in operation. The bellows were working with asthmatic wheezing, a muffled roar of fire proceeded from the massive pile, and the attendants darted here and there on special duty. Low down, at the base of the furnace, several jets of blue flame leaped hissing from the plastered wall, and from their midst flowed a sluggish but continuous stream of the molten metal. With the utmost gravity our host explained his operations; with equal gravity we listened. Out of his hearing, however, we laughed, not at him, but at his mode of smelting down the great old mother mountain, as if her treasure could ever be exhausted in that way. Our return was by the ancient Spanish road, via Tabalopa and the Junta."

Says Darwin, in his journal of his voyage in the *Beagle*, p. 284: "At Yaquil, Chile, when the gold ore is brought to the mill, it is ground into an impalpable powder. The mud [tailings] which passes from the mills is collected into pools, where it subsides, and every now and then is cleared out and thrown into a common heap. A great deal of chemical action then commences, salts of various kinds effervesce on the surface, and the mass becomes hard. After having been left for a year or two and then rewashed it yields gold, and this process may be repeated six or seven times, but the gold each time becomes less in quantity and the intervals required 'to generate the metal,' as the Chileans say, are longer."

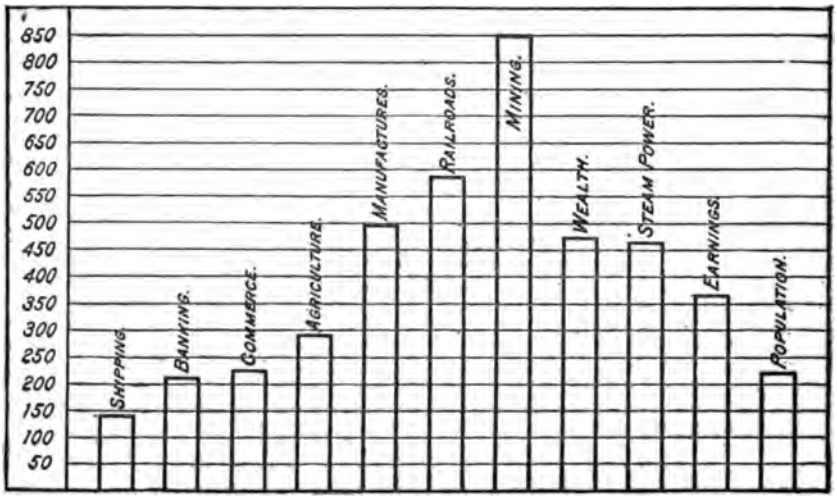
The ores which are treated at Oker, in the Duchy of Brunswick, are lead ores mixed with pyrites, blende, chalcopyrite, barytes, and from 25 to 40 per cent of sulphur. They are divided into five classes, two being treated as lead ores and three as copper. They all contain silver and gold. The working of these ores comprises seven distinct processes, mainly interesting for the separation of the amount of silver—0.01 to 0.02 per cent, and gold, 0.00005 to 0.0001 per cent. (Report of the Director of the Mint, 1886. The Separation of Silver and Gold from Black Copper at Oker, by T. Egleston, Ph.D.)

The function of an educational institution founded upon the scientific or Baconian axiom that man, the minister and interpreter of nature, can only perform his function by observing her, is mental liberality or openness to new conceptions. If schools of science forget their parentage, they will sink into the condition of those academical establishments which have been described by the Scotch philosopher Dugald Stewart as existing in some parts of Europe, which were not (in 1820) without their use to the historian of the human mind, for, immovably moored to the same station by the strength of their cables and the weight of their anchors, they enable him to measure the rapidity of the current by which the rest of the world is borne along.

GROWTH OF THE MINING INTEREST IN THE UNITED STATES AND ITS NATIONAL IMPORTANCE.

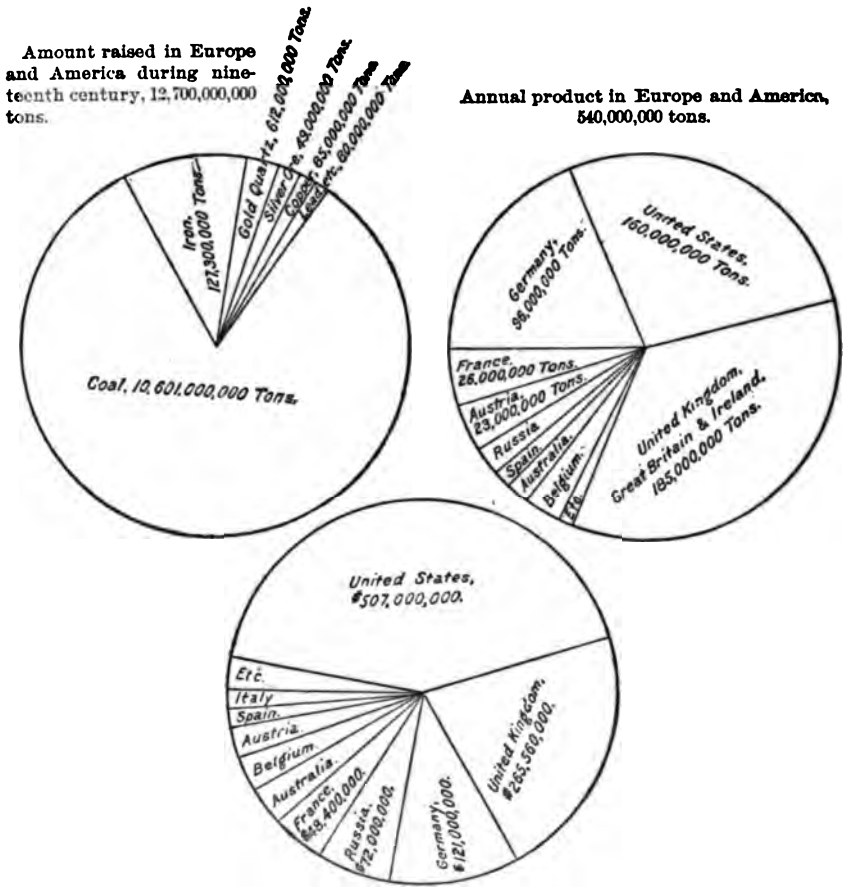
The best gauge of the importance of national interests so far as recognized by the nation is the Federal decennial census. The census of 1790 and of 1800 were capitation enumerations for political use, as required by the Constitution; but the census of 1810 was something more, for it contained a most extensive schedule of questions concerning manufactures, an industry then coming into prominence in New England, where one-third of the population of the country was concentrated on one-sixteenth of the territory east of the Mississippi River. In the census of 1820, under the educative influence of the debates in Congress, the crude questions of the census of 1810 were generalized; but in the census of 1830 the political crisis seems to have caused the inquiries to be confined to the number, color, and personal freedom of the people of the country, which was then more interested in the utterances of Mr. Webster and Mr. Calhoun than in manufactures or the tariff. In 1840 a crude form of inquiry entitled "industry" was inserted in the census and included both manufactures and agricultural products. It was not until the census of 1850—the prototype of our modern census—that mining statistics appear as a part of a new schedule called "social statistics," but not until the census of 1860 were they separated. The growth of the mining interests of the United States since 1860 may be illustrated in a general way by a diagram, slightly rearranged, constructed by Mr. M. Mulhall, the English statistician.

Progress of the United States since 1860, the conditions of that year being taken at 100 per cent.



Both as to quantity mined, value, and capital invested the most important mining industry among European peoples is coal, then iron, and then gold and silver. But in the United States the amount of capital invested in gold and silver mines is equal to the capital employed in both coal and iron mining, though coal employs over three times as many persons as the mines of iron and the precious metals. Compared to these four metals, the other mining industries are relatively of moderate social importance.

The position of the United States in the records of the mining industry of Euro-



Value of annual product, $1,210,000,000.

pean peoples is at the present day almost equal to that of Great Britain in weight of annual output, but far exceeds the mother country in the value of the substances exhumed, as will at once be apparent from an examination of the circles.[1] These circles show the amount of matter raised during the century, the amount raised annually by each nation, and its value. It is evident that Great Britain, the United States, and Germany are the great mineral-producing countries, but that according to value the United States produces almost as much as the rest of the world.

In the Federal Census of 1850 the only industry specifically treated was agricul-

[1] From Mr. Mulhall's Dictionary of Statistics.

ture, then absorbing all interest on account of the speculative movement th coincided with the tide of immigration from Europe, each adult male member which is supposed to have brought with him, on the average, $68.08.[1] In 18 however, coal and iron are considered worthy the dignity of special treatmer Together these two industries have grown in the following manner:

Number of persons employed in—	
1850	16,
1890	334,
For every 100 employed in—	
1850 there were in 1890	1
1860 there were in 1870	2
1870 there were in 1880	1
1880 there were in 1890	1

At the date of 1850 gold mining, and about 1862 silver mining, became a popul craze, effectuating the settlement of the mountainous States west of the Missou settlement in Utah. Movements of this kind are not at all subject to statistic treatment, and the best figures that can be given are that in 1889 56,391 perso were employed in mining the precious metals, at a wage of $2.50 per diem f laborers and $3.12 for miners. The results of these operations were 1,587,000 fi ounces of gold, valued in commerce at about $32,800,000, and 51,354,851 fine ounc of silver, valued in commerce at about $43,000,000, in all 1,813 tons, valued $76,000,000. On the other hand, the base metal iron and the steam-maker co are credited in 1889 with 9,579,779 tons of pig iron and 141,229,513 tons of coa of which perhaps one-third was used for smelting ores containing iron or oth metals and the rest for heating purposes required in commercial and domest life. The value of petroleum was $81,000,000.

The greatness of the production has had the effect of lessening the price of th metals. The flow of the precious metals from America to Europe in the sixteent century had the same effect on their value, and the equilibrium being again di turbed in 1850 by the discovery of the gold fields of California and Australia, th value of gold is said to have been again reduced. The recent discovery of gold i South Africa may have the same effect upon the present value of that metal if th deposits are as permanent in their character and are worked as Napoleonically the other metals. It was computed in the census of 1880 that the shrinkage i the price of coal had been 39 or 40 per cent, of iron ore 25.5 per cent, of ingot co per 24 per cent, while the increase in weight of coal had been 30 per cent fo anthracite, 55 per cent for bituminous, and 62 per cent for iron ore.[2] The functio and the market value of the base metals or minerals is so different from that o the precious metals that the two classes can not be compared properly in the sam graphic scheme, but, in concluding these remarks upon the commercial impo tance of the four great mineral products of the mines of the United States, it ma be of interest to have the increase of the production of the base and the precio class presented separately. (See diagrams pages 1035 and 1036.)

[1] Inquiry of the New York Commissioners of Immigration in 1856.

[2] Mr. Henry M. Chance gives the decline in value of the base metals and the precious meta silver, in this fashion, probably considering the value of the other precious metal to remai stationary for twenty years:

Pounds of metal required to purchase 1 troy ounce of gold.

	1876.	1896.	Deprec ation.
	Pounds.	*Pounds.*	*Per cen*
Of iron	2,076	3,858	4
Lead	344	636	4
Zinc	275	517	4
Tin	103	148	3
Copper	90	188	5
Silver	a 17.3	a 30.8	4

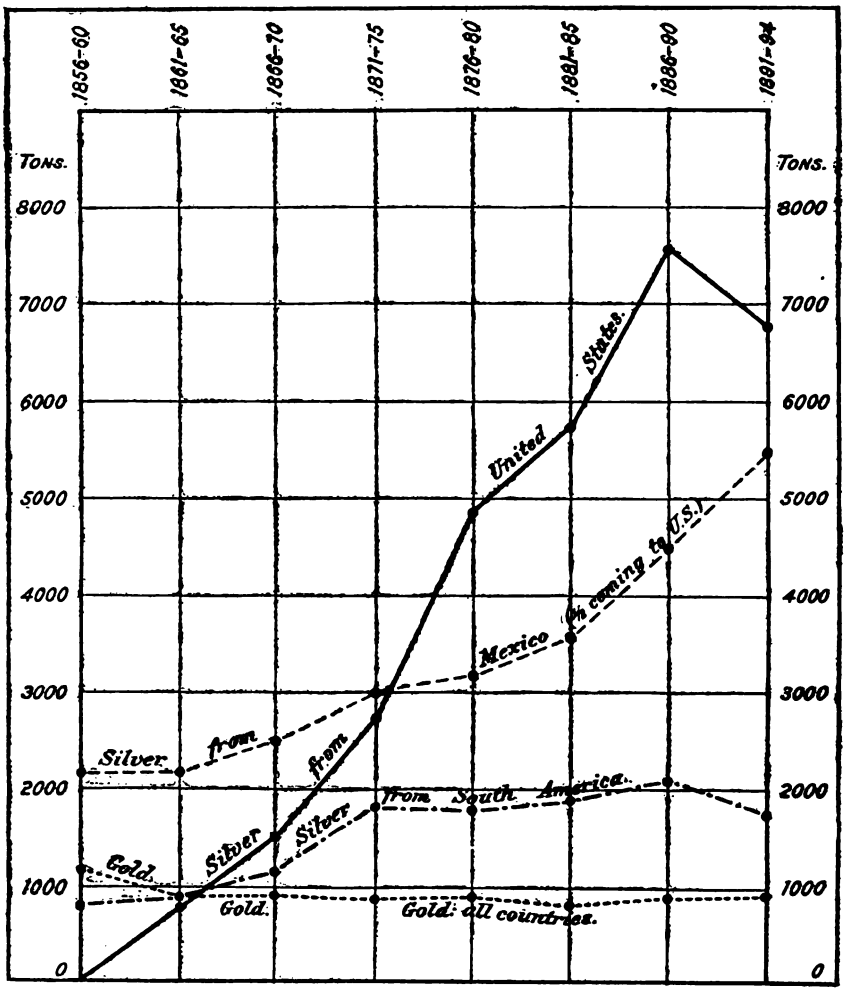
a Ounces.

LEGISLATION RESPECTING (1) MINING CLAIMS, (2) MINING INDUSTRY, (3) SAFETY OF THE MINES.

1. MINING CLAIMS.

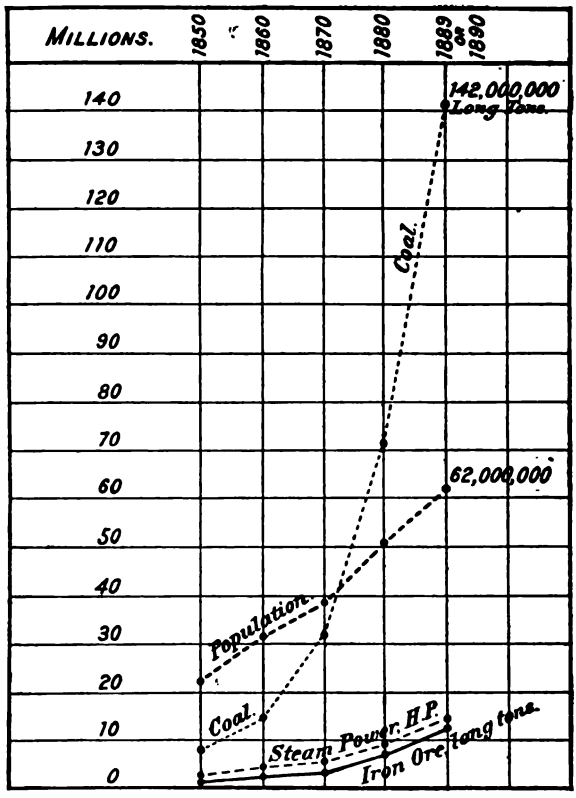
The mineral lands of the United States west of the Allegheny Mountains and the headwaters of the Ohio were originally the property of the people. In the ordinance of 1787 "for the disposal of lands in the Western territory" it was provided

PRECIOUS METALS.—*Production of the precious metals by the mines of the world since 1856.*



that "one-third part of all gold, silver, lead, and copper mines to be sold or otherwise disposed of as Congress shall hereafter direct" were to be reserved for the benefit of the public Treasury. Congress did not legislate upon the matter until

BASE MINERALS.—*Production of coal in the United States since 1850, compare with population, iron ore, and steam power, the production of the two last bein almost entirely a function of coal.*



1807, and then only in an incidental way. In an act of that year called "An act to prevent settlements being made on lands ceded to the United States until authorized by law," there is a proviso[1] to the effect that in all cases where "the tract of land includes either a lead mine or salt spring no permission to work them shall be granted without the approbation of the President of the United States, who is hereby authorized to cause such mines or springs to be leased for a term not exceeding three years and on such conditions as he thinks proper." By another act of the same year authorizing the disposal of the public lands west of the Ohio, it is enacted[2] that "the several lead mines in the Indiana Territory, together with as many sections contiguous to each as shall be deemed necessary by the President of the United States, shall be reserved for the future disposal of the United States, and any grant which hereafter may be made for a tract of land containing a lead mine which had been discovered previous to the purchase of such tract from the United States shall be considered null and void, but the President is authorized to lease any lead mine which has been or may hereafter be discovered in the Indiana Territory for a term not exceeding five years."

For forty years this policy was continued under the Secretary of War, who was practically the minister of frontier affairs in those days. During that period

[1] Revised Statutes, vol. 2, p. 446 (Boston, 1845). [2] Revised Statutes, vol. 2, p. 449.

the value of the deposits of copper in the upper peninsula of Michigan became known and the same policy of leasing was applied to them. But the period was not in concord with such a policy. In 1846 the first magnetic telegraph line in the world, the property of the Government, was ordered to be sold or leased to anyone who was willing to work it for what he could get out of it, and by another act of that year one-third of the national district was retroceded to Virginia on the ground that Congress should have under its exclusive control no more territory than was absolutely necessary. During the same year, 1846, an act was passed which authorized the President of the United States "to sell the reserved mineral lands in the States of Illinois and Arkansas and Territories of Wisconsin and Iowa, supposed to contain lead ore,"[1] and among the acts of the following year another act was passed providing "for the sale of mineral lands in the State of Michigan." But the system upon which the mineral deposits of the public lands of the people of the United States were to be worked was yet to be established.

By accident in 1848 the superintendent of Sutter's Mill was made aware that gold was to be found in the soil of California. Such news travels fast despite all efforts to secrete it, and as other States have come into the Union as aggregations of agricultural and village communities, California came into being as an aggregation of mining camps and the business dependent thereon. Men who have braved shipwreck and starvation in rounding the "Horn," or massacre or torture in crossing the "Plains," are not wont to wait long for Congressional action in matters where their business interests are concerned, and with an Anglo-Saxon instinct proceed to organization immediately, recognizing that individual liberty is due to a social compact and sanction.[2] Among the many thousands of manifestoes of local organizations in California is one issued at the meeting of the miners of Dry Creek, Rancherea Creek, Amador Creek, and Sutter Creek, in June, 1851, "in accordance with a previous notice." At this meeting it was resolved[3]—

First. That rules and regulations for the security of the peace and harmony of the miners who are now or who may hereafter be engaged in prospecting and working quartz mines are positively necessary.

Second. That in compliance with that necessity, we do hereby ordain and establish the following rules and regulations for the government of the district within the following bounds, to wit: All that portion of the county of Calaveras that lies south of the dividing ridge between the Consumes River and Dry Creek, and north of the Mokelumne River.

Third. That the size of a claim in quartz veins shall be 240 feet in length of the vein, without regard to the width, to the discoverer or company, and 120 feet in addition thereto for each member of the company that shall now or may hereafter be organized.

Fourth. That no claims hereafter made shall be considered good and valid unless the same shall have been staked off in conformity with resolution third and written notice of the size of the claim and number of men in the company posted upon a tree or stake at each end of the claim, together with the date of day when the claim was made, and all claims that are now made shall be staked off in conformity with these resolutions within five days from the date of the adoption of these resolutions.

Fifth. That the size of the claim, the number of men composing the company that holds the claim, together with a brief description of the location of the same so that it may be identified, shall within ten days after the claim is made be filed in the office of the justice of the peace in whose district the same may be located. And all persons holding such claims shall file the same within ten days from this meeting.

[1] President Polk had pointed out in 1845 that the leases had only given in four years $6,355, while the Government persons required to "superintend the lessees" cost $26,111. He recommended that the lands be sold, but that Government should reserve "an equitable percentage of the gross amount of mineral product." It may be added that in the Lake Superior region a large proportion of the mines are leased by the present owners, and no difficulty results, and Michigan is now the largest iron-ore State in the Union.

[2] In 1847 California had a population of 15,000; in 1850 it had increased to 100,000.

[3] Tenth Census, Vol. XIV: Mining Laws, p. 271.

Sixth. In all cases where claims are held by a company working jointly they shall not be required to work in more than one place, but when held by individuals each several claim must be worked.

Seventh. Whenever a claim has been abandoned and such can be clearly proved before the justice of the peace where such file was made, said claim shall be forfeited to the person or persons establishing such proofs.

Eighth. That these rules and regulations and proceedings be signed by the president and secretary of this meeting and filed in the justice's office at Drytown.

Thus was organized the Drytown mining district,[1] in the same manner, and the necessary changes being made, for the same purpose as that for which the early colonists of the Atlantic Coast organized themselves into a "town" for the purpose of civil government, or into a parish for the purposes of religious worship, or into a "school district" for the purpose of educating their children.

But the founders of the many mining districts established on the plan of the Drytown mining district were freebooters. The land they appropriated was the property of the people of the United States. This was no secret. The preamble of the resolutions creating the Springfield mining district was expressed in these apologetic terms: "California is and shall be governed by American principles. * * * And as Congress has made no rules and regulations for the government of the mining districts of the same, and as the State legislature of California has provided by statute and accorded to the miners of the United States the right of making all laws, rules, and regulations that do not conflict with the constitution of California, in all actions respecting mining claims we do ordain and establish," etc. In 1850-51, General Frémont, then a Senator in the Congress, introduced a bill to lay a ground rent upon the miners. A violent debate ensued, in which many proposed to sell the lands in large blocks; but through the efforts of William H. Seward and Thomas H. Benton the matter was allowed to drop.[2]

In 1865 the Federal Government finally acknowledged what was called a "possessory" title of exploitation, but still retained its ownership or "paramount" title, at least as far as the State of Nevada was concerned, which was the second State admitted having a preponderatingly large mining population. It was the law of 1866, however, that made the mineral lands of the United States "free and open" to the "citizens of the United States and those who declared their intention to become such," at a cost of $5 an acre and the expense of survey and registration of the claim in the land office of the United States.[3]

The legislation of the Government of the United States is not the first effort of a European civilization to regulate the disposal of mineral wealth beneath the surface of land owned by the people or individuals. It is, therefore, befitting that the main provisions of the American land laws, as far as they govern the disposal of mineral lands, should be preceded by a retrospective glance at the early principles that inspired the codes of Europe, not including whatever laws may

[1] In later mineral States this form may have sometimes degenerated into a farce, as was possible in a frontier community having some persons more experienced in the forms of procedure than in the matter of honesty. When gold was discovered in 1848 the news brought an unparalleled immigration into the mining counties of California. "Mining for the precious metals was a new industry to the people of the United States," says an official report on the Precious Metals in the United States. They had no laws applicable to the wants and necessities of miners. The title to the lands was in the United States and it neglected for eighteen years to pass any law with regard to mining. The miners themselves made rules and regulations for their own government. Under these customs and usages $1,200,000,000 worth of gold (1886) have been extracted from the mines of California, $900,000,000 of which came from the ancient river channels in Nevada County alone, and more remains than has heretofore been taken out."—Gold and Silver Mining in California, in Report of Director of Mint for 1886.

[2] On this point of the nonaction of the Federal Congress, the work by Mr. C. H. Shinn, entitled "Land Laws of Mining Districts," 1884, has been used. Mr. Shinn makes much of the resemblance, as was the fashion during the eighties, of the mining district to the "folk moot" of the Anglo-Saxons, and even of the system of the squatters of the early Teutonic and Aryan race. It is the adherence to the idea not the instinct that is Anglo-Saxon.

[3] Statutes at Large, 1865, Chapter LXIV (p. 441), and 1866, Chapter LXXIII (p. 43).

have governed the quest of precious minerals on the part of Spanish adventurers and the English and French buccaneers who relieved them of the products of their exertions as it was being carried across the ocean to Spain.

It might be assumed that as a bird of the air is the property of whomsoever has the cunning or skill to kill or entrap it, so the discoverer of mineral deposit might be regarded as at least partially entitled to the subterranean wealth his ability or fortune has led him to find, for in the civil law of Rome the discoverer of hidden wealth was entitled to share equally with the owner of the soil beneath which had been found the treasure—the res nullius, the thesaurus inventus, the treasure trove of the Roman and English lawyers. The depositor of the discovered treasure might well be considered as having practically abandoned it, for he had left no statement of his whereabouts nor of his intentions, and with the same propriety it might be held that Nature, in depositing mineral wealth by aquatic or thermic action, had relinquished all right in her work to the happy individual that Providence should send to find it. Two conditions have interfered with these suppositions, one of which has been called by the father of political economy "the sacred thirst for gold," and the other is the "right of eminent domain," a product of the feudal ages, when there was no land without its lord and the surface of the earth was owned not by those who tilled it, but was held in fee as a reward for military or theological services past, present, and to come. In ancient Greece, Macedonia, and Spain the State left mines of copper and iron to individual proprietors, though grasping those of silver and gold.[1] The right to the mines being therefore in the mediæval monarch or lord paramount—by "jus commune, quasi gentium," as Grotius names it—the right of the monarch was easily merged into the right of the people when the monarch became the first servant of the State, to use the expression of Frederick the Great of Prussia.

The English law of mines is simple: The owner of the surface or agricultural soil owns the mines.[2] The final overthrow of absolute monarchy in England in 1688 was accomplished by the land-owning gentry, and in the first Parliament of William and Mary a law was passed relinquishing all right of the State to ownership in lead, tin, or copper mines.[3] Quite in contrast with the English method is that adopted by the French. The revolution in 1789 which overthrew the old monarchy was, it is now claimed, a victory of the business men, lawyers, doctors, and merchants,—the bourgeoisie. In 1791 the first law regarding mining claims passed by a legislature appointed by the people dealt with mining claims in some degree as the Roman lawyers had dealt with treasure trove.[4] This law, due to the influence of the celebrated Mirabeau, declared that the State could arrange for the exploitation of a mine without the consent of the proprietor of the surface, though reimbursing him to double the amount of any loss occasioned to him by such exploitation. But the law of 1810 first clearly settled the particulars of such arrangement. The provisions of this law are as follows:

The Government has the monopoly of granting permission to mine. It shall select from the applicants for such permission such person or persons as may appear most likely to do the work without waste or failure. It may pass over both the discoverer or the proprietor of the surface, but the discoverer has a claim (the amount to be fixed by the State) against the person to whom the right to mine is given. The proprietor of the surface is also considered. He is forbidden to mine on his own property unless authorized to do so by the State, just as in a city a building permit is required, but if he be not the party to whom the grant to mine is given, that party is required to pay him such a sum under such conditions and in such a manner as the Government shall decide when granting the right to mine. Thus the right to mine, though "real property," is entirely dis-

[1] Merivale, The Romans under the Empire, Chapter XXXII.
[2] But the Government claims all workings below low-water mark.
[3] Blackstone, Book 1, Chapter VIII: The King's Revenue.
[4] Justinian, Institutes, II, 1, 39.

tinct from the ownership of the soil, yet as real estate is subject to all the laws which govern that species of property, except that it can not be divided.[1] The State supervises the working of the mine, with the object of preventing waste of the matters contained in the vein, to prevent damage to the surface soil, and injury (explosions?) to mine. For its trouble the State requires a fee of 2 cents for each hectare (2.4 acres) and a proportional part of the net product up to a fixed amount, and then 5 per cent for all over.

In the United States there have been three sources of legislation—the law of the mining district squatters as they took possession of the lands for mining purposes, the laws of the State, and finally the acts of Congress of 1866 and 1872. Mr. Shinn thinks that the laws of the mining district if collected would fill 2,000 pages. But what is essential in them is here supposed to have found its way into the Federal and State laws, which are epitomes of them. The Federal act of 1866 is based by implication upon "the local customs or rules of miners in the several mining districts," and is partially a ratification of those customs, partly a generalization of them for the purpose of preventing contests and fraud, the fee of $5 an acre mentioned in the act being, perhaps, merely sufficient to cover the costs of surveying, recording, etc. It is to be remarked that there are several United States inspectors of mines in the Territories not yet formed into States.

2. THE TARIFF ON IMPORTED MINERALS.

There are two features of public laws which are more or less intimately connected with the industry of mining which may be spoken of in this connection on account of their dignity, which lifts them far above provisions for regulating the business of private companies or persons, or for deciding actions at law. These are (1) the tariff laws passed by Congress since the formation of the Republic in 1789, and (2) the laws which have been passed to protect the life and limbs of the miner by the State legislatures.

Principal minerals mentioned either as ore or unwrought material in the more important tariff laws of the United States since 1789.

[From Tariff Acts of the United States. Government Printing Office, 1896.]

Year of law.	Coal, duty on, as—			Iron, duty on, as—			
	Bituminous per bushel.	Anthracite per bushel.	Coke and culm per bushel.	Slit, bar, hoop, etc., per pound.	Steel per pound.	Pigs per pound.	Ore per pound.
1789	$0.02			*a* 7.5 p. c.	$0.005		
1790	.03			*a* 7.5 p. c.	.006		
1792	.045			*a* 10 p. c.	*b* .01		
1794	.05			*a* 15 p. c.			
1804				$0.01			
1816	.05			.004-.013			
1824	.06			.008-.03			
1828				.01-.035	.013		
1832				c.008-.03	.013		
1842	.032		$0.05	.007-.01	.013		
1846	(*a* 30 p. c.)				(*a* 30 p. c.)		
1861(2)	.036	.018	*a* 25 p. c.	*a* 20 p. c.	*c a* 20 p. c.	$0.0026	
1862	.04	.022	*a* 30 p. c.				
1864	.045	.014	*a* 25 p. c.	*d* .01-.015	*e* .025-.035	.004	
1869							
1870						.003	
1872	.027						
1883	.027	0	*a* 20 p. c.	*a* 35 p. c.	*a* 25-50 p. c.	.003	$0.0003
1890	.027	0	*a* 20 p. c.	*a* 35-45 p. c.	.004-.07	.003	.0003
1894	.0002	0	*a* 15 p. c.	.005-.015	.003-.047	.002	.0002

a Ad valorem. In regard to iron it may be said that "rolled" iron was taxed more heavily than "unrolled," also that the 20 per cent of 1861 and the 35 per cent of 1883 are the minima. In both these acts and in those of 1890 and 1894 very many specific distinctions are made that can not be introduced into a table dealing merely in an illustrative way with ores or unfinished or unmanufactured material.

b Not quite if the long hundredweight (112 pounds) be meant.

c Railroad rails practically free if laid down.

d Also in some cases 35 per cent ad valorem. *e* Also in some cases 10 per cent ad valorem.

[1] Nouveau Dictionnaire d'Econ. Politique, art. Mines, par A. Renouard.

2. *Principal minerals mentioned either as ore or unwrought material in the more important tariff laws of the United States since 1789*—Continued.

Year of law.	Lead, duty on, as—			Copper, duty on, as—			Quicksilver per pound.	Tin per pound.	Zinc per pound.	Nickel per pound.
	Pigs or bars per pound.	Sheets per pound.	Ore per pound.	Rods or plates per pound.	Pigs, bars, or ingots per pound.	Ore per pound.				
1789										
1790	$0.01									
1792										
1794										
1804							$0.06			
1816	.01			$0.04	0			0	0	
1824	(.02)									
1828	(.03)									
1832							0			
1842	(.03)			*a* .04				*b* 1-2.5 p.c		
1846	(*b* 20 p.c.)			*b* 20 p.c.	*b* 5 p.c.	0	*b* 20 p.c.	(*b* 5 per cent.)		
1861 (2)	.015	$0.025		*b* 25 p.c.	$0.02					
1862			$0.01					*b* 15 p.c.	.015-.025	*b* 10 p.c.
1864	.02	.03	.015	*b c* 35 p.c.	.025		*b* 15 p.c.		.015	
1869					.05	*d* $0.03				
1870										$0.20-.30
1872										
1883	.02	.03	.015	*b* 35 p.c.	.04	*d* .025	*b* 10 p.c.	*b* 20 p.c.	.025	.15
1890	.02	.025	.015	*b* 35 p.c.	.0125	*d* .005	.10	$0.04	.0175	*e* .10
1894	.01	.01	.0175	*b* 20 p.c.	0	0	.07	0	.01	.06

a Plates and sheets 30 per cent ad valorem.
b Ad valorem.
c $0.035 for sheathing copper.
d By pounds, pure copper contained in ore. Mr. Taussig claims that copper ore paid 5 per cent ad valorem before 1869.
e Ore and matte free.

3. Protection of Miners.

If there be exclu led from consideration the stricken field of battle, it will be found that the most deadly occupation that man can engage in is mining, especially coal mining, an occupation in which by far the largest number of miners are engaged. In 1886 there were 916 miners killed by accident in England, 180 more male persons than the railroads succeeded in killing of their passengers and employees. For every 57,000 tons of mineral raised in Great Britain during the period of 1851-1860 one miner was killed outright. Of the maimed no figures can be given for England; but in Belgium from 1880 to 1889 the annual average was 210 killed, and 74 so severely hurt as to be incapacitated for work during six months or more. In England there has been a loss of 33,000 lives from 1851 to 1888, the victims being killed upon the spot. In 1895, 1,198 lives were lost. Yet it appears that this is preventable, for from 1851 to 1860, one miner in every 245 was killed; in 1861 to 1870, one in every 300; in 1871 to 1880, one in every 425; in 1888, one only in every 484. At the last European congress of miners Mr. Möller introduced a resolution which he contended would prevent this destruction of life. There should be a state inspector, he thought, who should visit the mine every three months in the case of ordinary mines, but once a month in the case of dangerous mines. There should also be an employee appointed by the mine owners to supervise dangerous mines under the control of the State, and finally there should be workingmen inspectors selected by their comrades and paid by the state, who should have a permanent control of the carrying out of the work set in motion by the state inspector. It is noticeable that both in Germany and England great respect is paid to the scientific knowledge of the inspectors by the miners, but that they put very little faith in their practical knowledge of the working of the mine.[1]

[1] Cf. Mining Inspection a Sham, Nineteenth Century, June, 1885.

The great causes of death in mining are two: Fire-damp explosions, mostly co fined to coal mines, that "blow" out methane or marsh gas, and roof-falls ar caving in of the sides of the galleries.

The cause of an explosion in a fiery mine has received, as may be readi imagined, considerable attention. In the early part of the century Sir H. Dav experimented upon the inflammability of the gas that causes the trouble, whic he said, when mixed with from four to twelve times its volume of common a may be exploded by introducing a light, resulting in suffocating the miners or i shooting them out of the mine as though they had been projected into space by a enormous cannon. Another English chemist, Mr. Faraday, on the other hand, i a report upon the explosion in the Haswell colliery, remarked many years ag "That there is every reason to believe that much coal gas had been made on thi occasion from the coal dust in the very air itself by the flame of the fire dam * * * and that much of the carbon in this dust remained unburnt only fo want of oxygen." In an address on the Chemistry of Colliery Explosions Due t Gases Derived From Coal Dust, Mr. Donald M. D. Stuart remarks that the explo sions at the nongaseous "Camerton," and "Tunesbury" collieries were originate by the heat generated by the blasting powder which, being 3,200° to 3,600° F., woul so operate upon and dissociate the coal dust suspended in the atmosphere that i would be converted into ordinary illuminating gas, or a "gas" composed of 51.2 per cent free hydrogen, 38.84 per cent gaseous hydrocarbons, and 10 per cent othe bodies. As soon as the free hydrogen of this gaseous mixture meets a considerabl quantity of common air (which contains free oxygen) the hydrogen and oxyge unite, producing a flame and an explosion. This explosion liberates more hea and sets up another train of chemical changes which culminate in another explo sion when the moving current reaches another place having a sufficient supply o oxygen to ignite it.[1] Again, it appears that finely divided coal left behind in th "sides" of the working places is especially liable to ignite from so-called sponta neous combustion due to the rapid oxidation that is set up when the slack of coa is brought in contact with air.[2] The efforts to obtain safer explosives and illumi nating apparatus for mines will be spoken of hereafter.[3]

The second great cause of the mortality and bodily dismemberment of th mining population is the neglect of the engineer, either from economy or venture someness, to shore up the excavations he is carrying out.[4] As timber is not scarc in America, this evil is less likely to happen here than in Europe. But there is danger in the use of wooden props in the warm, moist atmosphere of the mine readily recognized by those who have lived in the moist climate of Florida o other subtropic clime. This danger is the dry rot of timber, and is peculiar to ill ventilated places. The quantity of water daily flowing from the Sutro tunne was, in 1879, 12,000 tons, and its temperature at the mouth of the tunnel wa

[1] Nature, April 22, 1897. Methods of overcoming the dangers resulting from the accumulatio of coal dust in mines. M. Schmerber has studied in the Genie Civil the different means recog nized as overcoming the dangers of coal dust in mines, and notably those having the object t dampen the dust. The last named method in its several varieties has been more and mor adopted, and may be classed in five different categories.

1. The use of salt or other body which has a great affinity for water.
2. Use of water vapor.
3. Setting up of damp surfaces.
4. Watering by means of reservoirs which are either fixed or movable.
5. Watering by canals and subterranean conduits.

It appears that up to the present the method of moistening the coal dust is the most effectiv in overcoming the dangers of having the atmosphere of coal mines saturated with coal dust.- Revue Scientifique, November 20, 1897, p. 665.

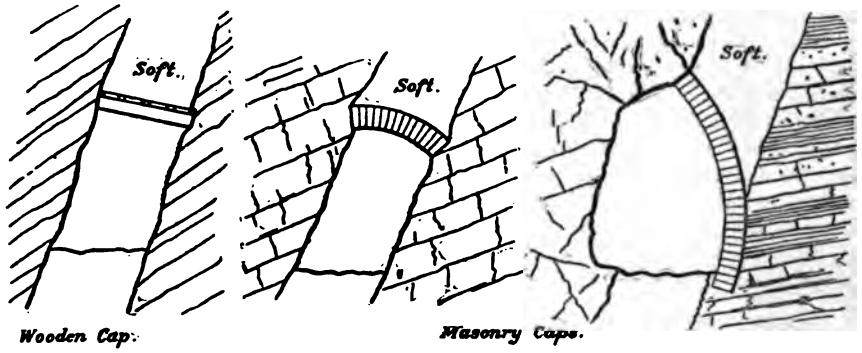
[2] H. Bauerman on coal mining.

[3] Page 1052.

[4] Cf. Mr. Clarence King's remarks on economy, p. 1031.

123° F., and though this is an exaggerated instance of the combination of moisture, warmth, and a comparatively stagnant atmosphere, it illustrates by figures the conditions to which timber in mines is subjected, especially poorly ventilated mines. The first cost of timber and the frequent repairs it requires have caused mining engineers in Europe to use masonry or even iron in their shoring. As illustrating the difference, several cuts from Mr. Inspector Foster's work on mining are given.[1]

When the lode in metalliferous mines or the bed or seam in coal mines is wide other measures must be taken. The methods are in general two. The first is to excavate, so to speak, streets in the bed after the manner that a city on the rectangular plan on which Philadelphia is laid out, then to attack the blocks of coal that support the roof. The other is to leave a wide ridge of coal through the length of which a main tunnel is driven, and from the sides of this offshoot-tunnels are opened, piercing the ridge. At the outer end of these offshoot tunnels the whole body of coal is removed and carted back to the main passageway. As the work advances from the outer end of the offshoot tunnels they are continued by protecting them from the matter accumulated by the pealing off of the unsup-



ported roof on both sides of the ridge of coal which protects the main tunnel and the offshoots to the edge of the ridge. It is not necessary to dwell upon the virtue of being chronically apprehensive in such situations where familiarity indubitably breeds recklessness.

The statutes of many States contain excellent provisions regarding the protection of life in mines.[2] The accident in the Hartley colliery, in England, upon which occasion the beam of the pumping engine fell into the shaft and closed it

[1] It is understood that the reclamation and anchorage of the moving sands of southwest France by planting pine trees (*Pinus maritima*) upon them by the government, has resulted, now that the trees have grown, in the sale of "props" to the English mines, the forest being replanted as the trees are removed.

[2] By the act of Congress (chap. 546, Rev. Stat.) of 1890-91, to provide regulations and inspection for coal mines, which are by far the most dangerous, the following rules are laid down in a general or abstract sense:

1. Owners, lessees, or managers of coal mines having an output of 1,000 tons a year shall provide at least two shafts, slopes, or other outlets (in addition to any furnace shaft), which shall be separated by natural strata of a thickness of not fewer than 150 feet, so that distinct means of ingress or egress shall always be available to the persons employed in the mine.

2. When a depth of 100 feet has been reached in any coal mine, not fewer than 55 cubic feet of pure air per second, or 3,300 cubic feet per minute, shall be furnished to every 50 men at work in the mine, and in like proportion for a greater number, which air shall, by proper appliances or machinery, be forced through such mine to the face of each and every working place, so as to dilute and render harmless and expel therefrom the noxious gases, and all workings shall be kept clear of standing gas.

3. A metal speaking tube from the bottom to the top of the shaft or slope shall be in all cases

so completely that before it could be removed the whole body of persons in th mine had been starved to death, caused Parliament to pass a law requiring tw shafts, at some distance apart, instead of one, divided into two compartment This provision has emigrated to America.

IMPROVEMENTS IN MINING MACHINERY.

The best though not the cheapest instrument in excavating ore in subterranea mining is the skillful miner, and all "improvements" in mining machinery ar directed on the one hand to supplanting him or to enabling him to work more exp ditiously by removing the accumulated water and gases that impede or woul eventually prevent his working at all, and on the other hand to the economica transportation of the product of his labor to the places of assortment and fina deposit. Explosives and the drill are generally employed in operations for metal liferous ores, but the inflamable and dust-laden nature of the atmosphere of man coal mines renders the use of explosives dangerous.

Few forms of manual labor surpass in their arduousness of muscular exertion in their painful constraint of attitude and movement, in their liability to acci dent and death, and in their habitual and unavoidable filthiness, the toilsome strug gle of the industrious, lonely pickman, whose hard lot has consigned him to pas his working hours hewing with violent efforts into a hard seam of coal in a badl ventilated mine.[1] Where the coal seams are thick, and the miner has 5 or 6 feet o thickness to smash at, a bungler by sheer brute strength can manage to make a fai wage. But such men are dangerous to have in a mine. It takes a man years t become acquainted with all the indications of danger. "The eye, the ear, th sense of smell, and the very nerves of the experienced man tell him when dange is near. If it were otherwise the accidents in mines would be tenfold more numer ous than what they are."[2] In excavating other minerals than coal, however, th dangers and the discomforts are possibly fewer.

THE MACHINE ROCK DRILL.

The rock drill, it is claimed, is distinctively an American invention. It embodie more newness in comparison with its volume and weight than any other machin of equal importance. André, in his work on Coal Mining, states the requirement of such a machine to be—

1. A machine rock drill should be simple in construction and strong in ever part.

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provided. An improved safety catch shall be provided, and a sufficient cover overhead shall b provided on every carriage used in lowering or hoisting persons. Only experienced and com petent men shall be placed in charge of hoisting apparatus, and the number of persons to b admitted at one time in the carriage shall be specified by the inspector of the mine hereafte described.

4. There shall be appointed by the President as mine inspector for each organized or unorgan ized Territory (practically Alaska) a person who is either a practical miner or a mining engi neer, and who shall not be interested in the operation of any mine in the Territory whil serving as inspector. He shall have right of access to and of inspection of any coal mine in th Territory, but in performing this duty he shall in no way impede or obstruct the working o the mine, and the owner shall furnish him facilities for performing his duty. He shall report a least once a year upon the condition of the mine and the provisions for the health and safet of the miners, as detailed above. In case of fatal accident, a full report shall be made by th management of the mine to the inspector in writing.

5. Failure to comply with the provisions of this act is punishable by a fine of $500 or less sum and as a cumulative remedy, a court of competent jurisdiction may enjoin the working of th mine until the law is complied with.

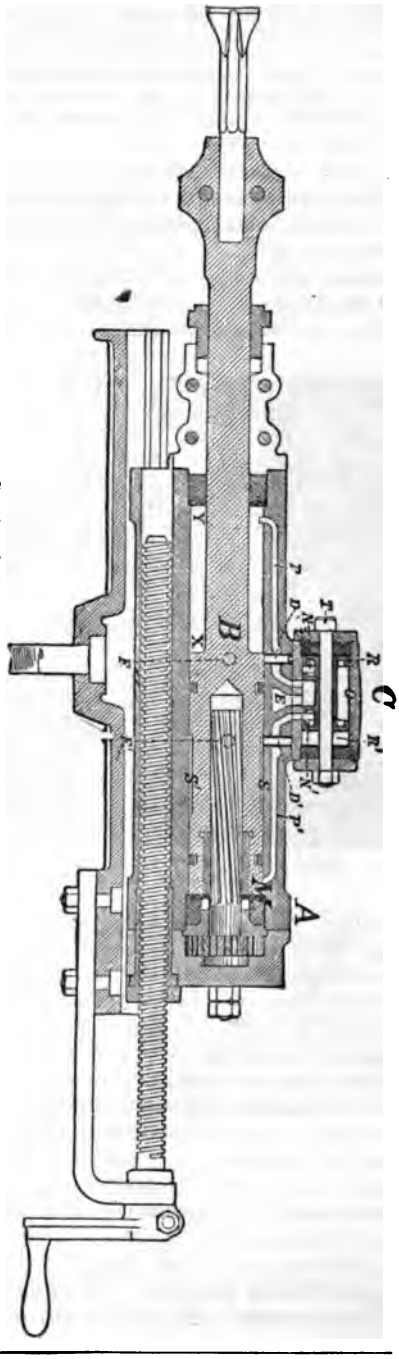
NOTE.—Any organized Territory certifying a copy of its laws for the safe operation of mine within its Territory shall be relieved from the incidence of the Federal law.

[1] H. D. Rogers, professor natural history, Glasgow University, in 1864.

[2] The [coal] miners of Scotland. Robert Haddow, Nineteenth Century, September, 1888.

2. It should consist of few parts, and especially of few moving parts.
3. It should be as light in weight as can be made consistent with the first condition.
4. It should occupy but little space.
5. The striking part should be relatively of great weight and should strike the rock directly.
6. No other part than the piston should be exposed to violent shocks.
7. The piston should be capable of working with a variable length of stroke.
8. The sudden removal of the resistance should not be liable to cause any injury to any part.
9. The rotary motion of the drill should take place automatically.
10. The feed, if automatic, should be regulated by the advance of the piston as the cutting advances.

J. J. Couch, of Philadelphia, first patented, in 1849, a percussive rock drill embodying some of these features. In the same year, but a little later, Joseph W. Fowle, of Boston, patented and built a drill, the first one that had ever been introduced where the drilling tool was attached directly to the engine or was an elongation of the piston rod. Subsequently Charles Burleigh constructed a drill on Fowle's patents, embodying important improvements. Since then, Ingersoll, Wood, Githens, and Sergeant have endeavored to bring the drill more nearly to André's dicta. All the early drills were what are now known as "tappet" drills; that is, the movement of the valve was effected by "tappets" projecting into the cylinder and struck or moved by the piston. But the "tappet" construction does not follow one of the most important conditions of a perfect rock drill in that a part other than the piston is "exposed to violent shocks."[1] In 1873 Henry C. Sergeant abandoned the idea of the old tappet-moved drills and designed the Ingersoll Eclipse drill, which is described by its manufacturers as follows:



Sectional view of "Ingersoll" Eclipse Drill.

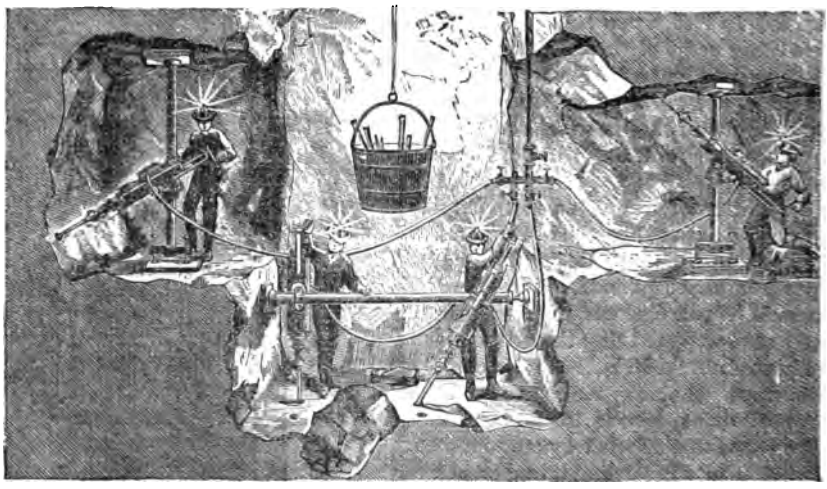
The Ingersoll has a variable piston stroke, which is of utmost importance in a rock drill. In starting a hole in hard rock the stroke is shortened by simply turning the crank, thus feeding down the bit close to the rock. A hole can be started with a short stroke in one-half the time required with a full stroke. Another advantage of the variable stroke is that it enables the drill to

[1] William L. Saunders.

work loose in seamy or broken holes and to loosen the mud in muddy holes. Th drilling machine has only two quick-moving parts—the piston and the valve—an no part except the piston is subject to violent shocks. The blow struck is un cushioned, for the valve does not move until the blow is delivered, which is thu struck on the rock with full force, the machine not using steam or air expansivel but at full pressure in the blow and the recovery. Danger of breakage is ove come by elastic buffers at both ends of the cylinder. The machine is compari tively light, and is equally effective in both wet and dry holes. The drill may b run either by steam or compressed air, and may be operated attached to a tripo or a shaft or a quarry bar.

A very important feature, it is claimed, is the single-spool valve (C of the illus tration), which admits the motive power into the cylinder (A) to move the pisto (B), which, being light, is itself moved back and forth easily by the steam or ai used in the drill.

The economy of rock drilling by machinery was at one time a mooted question Mr. G. C. André[1] (writing in 1876) speaks somewhat paradoxically upon thi matter. After mentioning the inclination of the miner not to work so "arduously"

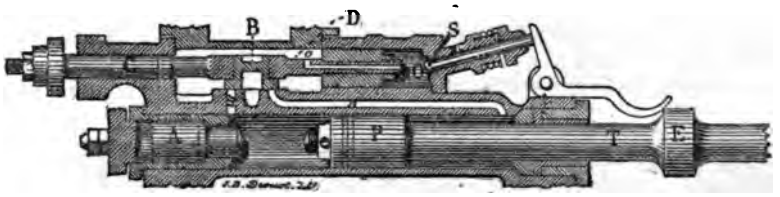


Positions of a machine drill in sinking, drifting, and stopping.

and his demands for more pay and combinations to obtain it, Mr. André remarks that "rock drilling is less a saving of money than of time;" for the "merit of the machine drill lies in its ability to concentrate the work of a number of men upon one point, or, which amounts to the same thing, to increase the amount of work executed in a given time by a given number of men, but the cost in most cases remains undiminished." It would thus appear, according to Mr. André, that as far as mining minerals is concerned, the machine saves time but not money. In sinking shafts or in tunneling where there may be a feverish anxiety to get at or through something the value of the rock-drilling machinery in hard rock is indisputable, but even in soft rock it is claimed by the manufacturers of the machine drills that "a mistaken idea is sometimes entertained by operators that in soft rock a hole can be drilled by hand before a power drill can be set up for the work. The conditions are exceptional when over five to ten minutes are required to set the bar (the supporting column upon which drill is mounted) in position, and once set, the hole is put down very rapidly. In sandstones a foot of 2-inch hole is drilled at the rate of 8 to 20 inches per minute, in limestones from 4 to 14 inches,

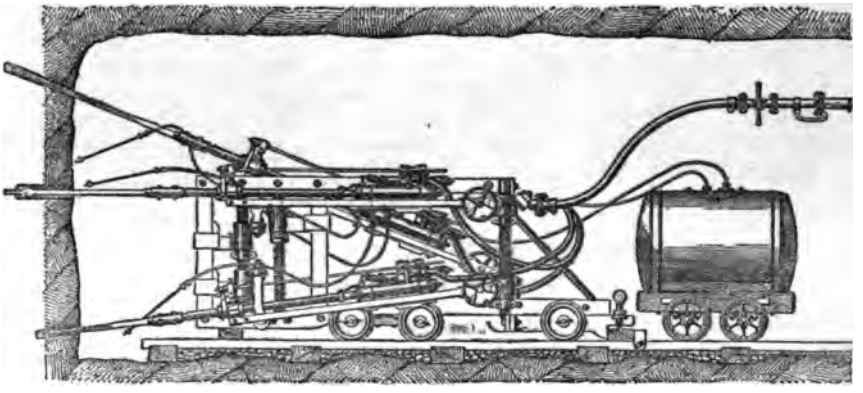
[1] Practical Treatise on Coal Mining.

and in granites from 2 to 8 inches, all running time. In some extremely hard, blocky materials the rate is less; but it is a rule that the harder the rock is to drill the greater is the advantage of machine over hand work. When drilling by hand the steel must be removed and the hole 'mudded' out every few inches. Power drills have a run of steel of 24 inches, and the hole cleans itself in most cases, often running to a depth of 8 to 12 feet without the use of a sand pump or swab-stick. Two drills may be mounted on one bar where the rock is hard and rapid progress is desired."



"Perforateur" of the Dubois-François drill.

A perforater, as the French call these drills, known in the trade as the Dubois-François, is highly spoken of. It consists of a bronze cylinder within which moves a piston marked P in the cut, the rod of which T carries the drill. A is a buffer in a chamber for compressed air serving to lessen the shock. Above the piston is the pathway through which the compressed air, admitted at the valve B, flows down through *m* and *n* to operate the piston. At C and D are secondary pistons, of which D is the larger and is pierced with an airway *o*O. The compressed air in the upper chamber striking both C and D drives them toward S, and the passageway *m* is opened, but the air flowing through *o* O fills the chamber S and the two secondary cylinders are moved back and the passageway *n* is opened for an



Rock drill called Dubois-François.

inlet and *m* is opened for an outlet. But the compressed air moving in through *n* to drive the piston rod T back causes E to operate the tappit so as to open S and let out the compressed air in the chamber into which the piston D works. The drill is rotated by an apparatus not here figured. As many as three or four of these perforators may be mounted and operated, as shown in the cut.[1]

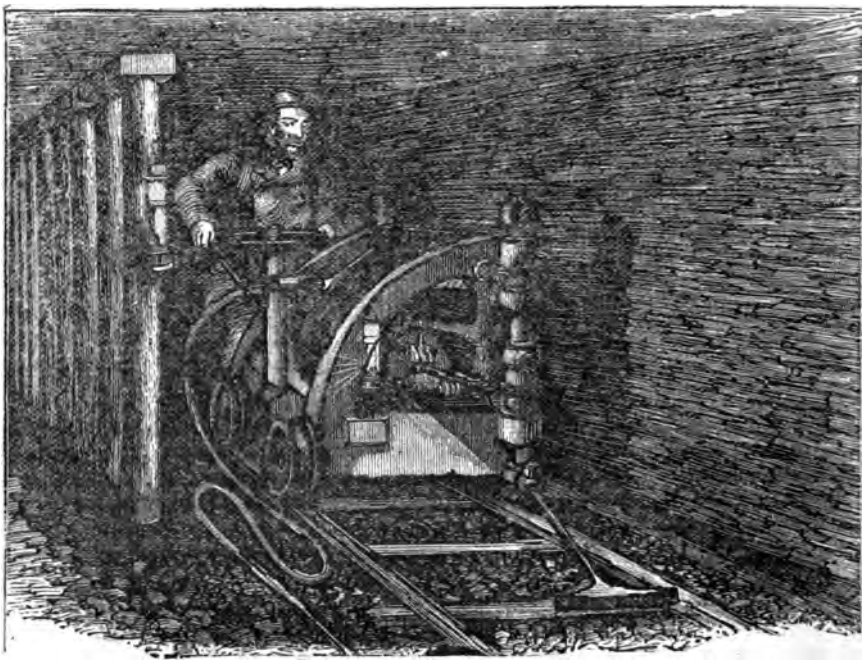
Undercutting Machines For Coal Cutting.

In the case of the rock drill the drilling of the holes is only the prelude to the ripping and shattering processes of exploding dynamite or blasting powder. The

[1] Les Mines, les Minières, et les Carrières par A. Badoureau, Ingenieur au Corps des Mines, et P. Granzier, Ancien élève de l'Ecole polytechnique.

machine must be set up, the holes bored, and then the whole apparatus must b removed from the effects of the contemplated explosion. Perhaps these feature of mining will never be entirely superseded by methods which occasion les delay, but for years unremitting efforts have been made to accomplish the worl of the pick with as little discontinuity in the work on the coal vein as possible and apparently there are several machines that will perform the work to a moderately satisfactory degree.

In 1863 a coal-cutting machine was introduced into the Ardsley and Newbottle collieries, England, upon the merits of which Prof. Henry D. Rogers was enthusiastic. This machine consisted of a large iron cylinder mounted on an iron truck (as shown in the cut), with a piston working as in a locomotive, except that, instead of communicating its in-and-out motion to a set of wheels, it caused an upright pillar

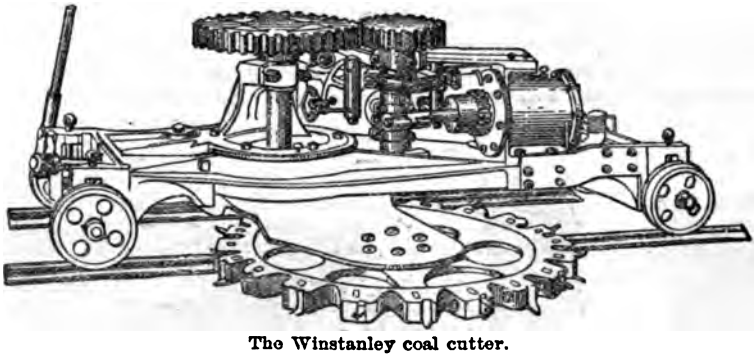


The West Ardsley coal cutter.

or tubular shaft, to the lower end of which was attached the handle of a massive pick, to make a quarter revolution or more.[1] Thus, instead of the miner resting upon his side, slowly undercutting the seam, upon which he works until the rumble of the setting coal warns him to desist, we have the pneumatic engine driving a ponderous pick, into the lower edge of the seam or beneath it at the speed of 120 strokes a minute, managed by one man comfortably seated on the carriage behind the cylinder, and refreshed by the escape of the air which struck the last blow. In this way one man pleasantly performed the dismal toil of fifteen or twenty able-bodied men. The success of the pneumatic picking machine being assured, Professor Rogers asks how will the miner who it is to supplant welcome it? And he finds no difficulty in coming to the conclusion that, in view of the deadly character of work in the coal mines, the collier will rejoice

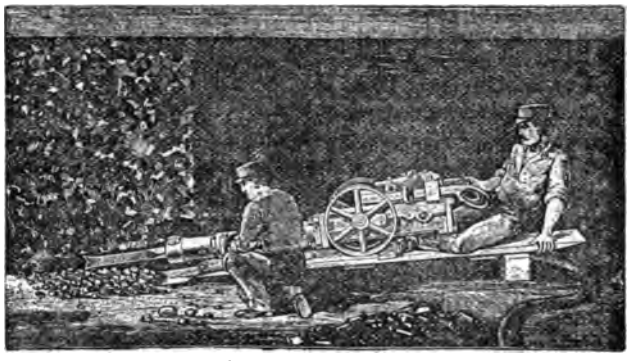
[1] Or, to express it technically, within the metal frame of the truck is a horizontal cylinder, fitted with a piston and trunk, and the piston by a connecting rod rocks an arm attached to a vertical shaft, which is provided below with a socket that carries a pick.

that heaven has sent a machine that will keep fourteen to nineteen men out of the mines. On the other hand, it has been estimated by that stanch friend of the miner, having been himself one, the Honorable Thomas Burt, M. P., that in coal mines alone 46,000 miners have lost their lives since 1861, the epoch of the perfection of the pneumatic picking machine of Yorkshire, to say nothing of the maimed and poisoned.



The Winstanley coal cutter.

The principle of the coal-cutting machine just described was a pick upon a handle moved by the partial revolution of an upright column, to which it was attached, as a spoke to the hub of a wheel. By 1875 a coal-cutting machine was described as in successful operation in which the pick was replaced by a circular saw operated, as before, by a pneumatic engine.[1] In a 4-foot seam it was said that the capacity of one machine would be 50 tons for each shift of ten hours, the work



The Ingersoll-Sergeant coal cutter at work.

of thirty or forty men.[2] This engine was called the monitor coal cutter, apparently from the revolving disk in the edge of which were placed the knives which cut their way into the surface of the wall of coal to the depth of 56 inches.

Among later inventions still are the Ingersoll-Sergeant coal cutter, the Yoch coal-cutting machine, and the Harrison. In the Yorkshire pick we have had the swinging motion imparted by the miner to his pick imitated by a machine. In the monitor engine we have had the tearing or abrading motion given by a rotating disk. We now come to the consideration of an instrument that pounds or drills out a groove by a blow delivered by a straight forward or thrusting motion against

[1] Mr. C. H. Waring as early as 1852 patented in England a machine of this description, worked by hand.

[2] P. W. Sheafer, C. E.

the seam. This machine, unlike the two types with which it is here compa requires no track. The illustration will sufficiently well describe its make-up mobility.

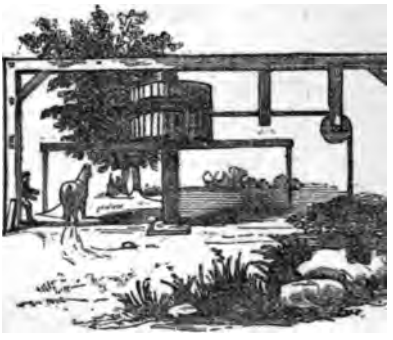
The diamond rock drill, despite its merits as a prospecting instrument, can be more than mentioned here, for we are considering methods of skillf exploiting a deposit, not of enriching deposit hunters.

The Subterranean Transportation of the Ore.

The ore being broken or blasted from its natural place, it becomes necessar remove it as economically but as quickly as possible. An old method of star it on its journey to the mule-drawn car is shown in the cut, but the mule po

Tanatero.—Harpers Monthly, Vol. XII., p. 728.

Pushing an ore car.



Whim.

which was formerly the great motor of the mine is now being supplanted by locomotive. At first this innovation was a mere form of the surface engine, its disadvantage was that it vitiated the atmosphere of the mine. The structors of this form of locomotive have now engaged in the constructio motors operated either by electricity or compressed air.[1]

When the level upon which the deposit is being worked does not open upon side of a declivity, it is very evident that the transported product of the m must be lifted to the surface of the earth. This was formerly accomplished very primitive way in Spanish America by the human back[2] and at the co mines of Michigan by a contrivance called a whim.

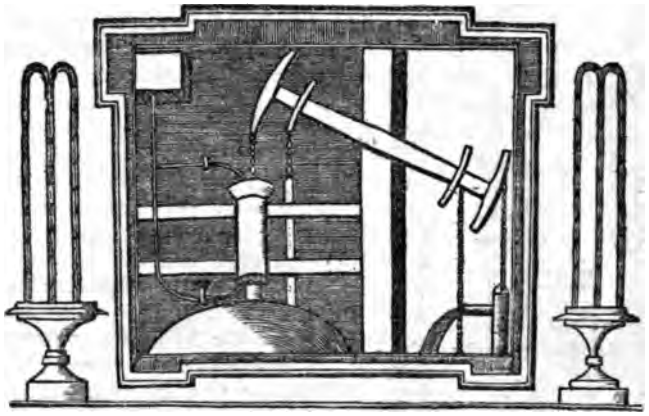
[1] In the August 18, 1896, number of the Scientific American, p. 136, there is a photogravu a "new-type" mining locomotive operated by electricity, built by the Baldwin Locom Works and the Westinghouse Manufacturing Company for the Crozer Coke and Coal Comp

[2] The tanateros of Honduras are a class of workmen employed to bring up ore in sacks f the bottom of the mine. They climb nimbly up the slippery escaleros (the apology for a lad

Compare with the methods represented in these illustrations of the lifting apparatus of the Spanish and Anglo-American mining engineers of 1850 the lift of any large building equipped with an elevator or the drums in the power house of any system of street railways with its wire rope built to resist abrasion. Indeed, endless chain or cable system is frequently employed in mines.

But the amount of mineral substance lifted out of deep mines that can not be drained by a tunnel or adit is far inferior to the amount of water that must be pumped out. The atmospheric engine that James Watt studied and improved into an entirely independent machine was merely a steam pump, the weight of whose pump rod mainly pulled up the piston that the atmosphere had pushed down into the vacuum artificially created beneath it in the cylinder in which it worked; and when Watt, in 1772, had changed the steam pump of Newcommen into the steam engine of our own day the first orders that were received by the new firm of Watt & Boulton were from the owners of coal mines.[1]

In all pumping operations the variation of the steam pressure and of load are frequent and unavoidable to such an extent as to be frequently attended with dis-



Reverse of a 2-shilling "waterworks note" issued by the city of New York in 1774, illustrating an improved Newcommen steam pump.—From Engineering.

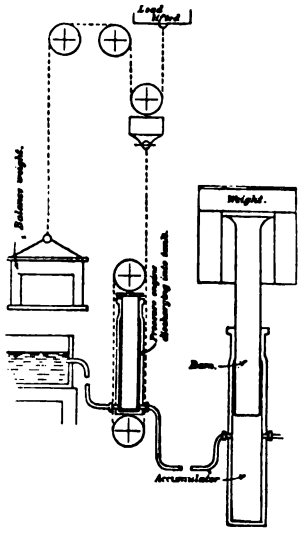
aster. To regulate the stroke, and especially to prevent as far as possible the jarring or pounding of the pumping machinery, a fly wheel has been attached to lifting and force pumps worked by power generated on the surface. The fly wheel is intended to stop the stroke or to slow it down when nearing completion. Similar efforts to regulate the stroke of the forcing class of pumping engines, which are placed at the bottom of mines, are apparent in the case of the Worthington engines and the isochronal pumping engines. But it is believed that eventually the system inaugurated at the Comstock mine some years ago will supersede the direct action of the steam-driven piston upon the pump rod or plunger. It seems paradoxical to lift water out of a mine by dropping water into it through a pipe, yet Mr. Joseph Moore, availing himself of the invention, called an accumulator, of Sir William, now Lord, Armstrong, conveys the water (and with it the accumulated hydraulic pressure) from the surface where the steam engines that feed the accumulators are, to hydraulic engines working plungers fixed almost half a

represented in the illustration) with a load of 125 pounds on their back (in 1855). Mr. Darwin says that the Chilean tanatero brings up as high as 200 pounds from a depth of 450 feet, living entirely on boiled beans and bread. Voyage in the *Beagle*, p. 283.

[1] History of the Steam Engine, Thurston, also Lardner, The Steam Engine (1827), p. 66 of 1836, fifth edition.

mile down in the mine below, and thus forces the mine water in one column ov 800 feet high to the level of the Sutro Tunnel at the rate of 1,600 to 1,700 gallons minute. This was an important innovation in the drainage of mines; on a mu smaller scale, perhaps, compressed air may be made to operate plungers in t same way, as at certain collieries of Pennsylvania.[1]

In noting, even in the fragmentary manner here followed, it can not fail to l remarked by the reader that between the steam engine at the surface and the scen of excavation within the mine a secondary engine is coming into play. Th power some years ago first entered the field of industry, except so far as natu had abhorred a vacuum in connection with pump, as a carrier of small packages and lette from one part of a building or a city to anothe through pneumatic tubes. Now, as compresse air, it is drilling holes into the hardest rock, unde cutting coal and driving engines, and even unde certain "artesian" conditions lifting water wit out the aid of valves. The use of compressed ai as a motive power, says a writer in the Scientifi American,[2] on board a war ship (which is a sort o floating mine, it may be observed), presents sev eral advantages over steam or hydraulic powe which render it a powerful competitor. In pipe it is less dangerous than steam, especially durin an action, when a bursted or broken steam pip might prove terribly fatal, nor is it calculated t elevate the atmosphere to an uncomfortable degree and there are certain places, such as the turre crowded with men, and the steering below th protected deck, where the exhaust from the pneu matic engines would be a source of comfort. A compared with the hydraulic power the com pressed air (on shipboard) is cleaner, more conven ient, and wholly free from the discomfort tha arises from leaking water pipes and cylinders.



Diagrammatic sketch of hydraulic accumulator.

As to the possibilities of the great secondary motive power of the times, electric ity, in damp excavations and gaseous mines in competition with the pneumatic or, as it is called, the compressed-air system, it is not within the sphere of thi paper to speak, but it would appear unquestionable to assert that electricity as means of illuminating mines can never be superseded.[3] This advantage may off

[1] The important civil engineering function of the mining engineer in sinking his shaft throug water-bearing strata is omitted as not particularly special to mining engineering.

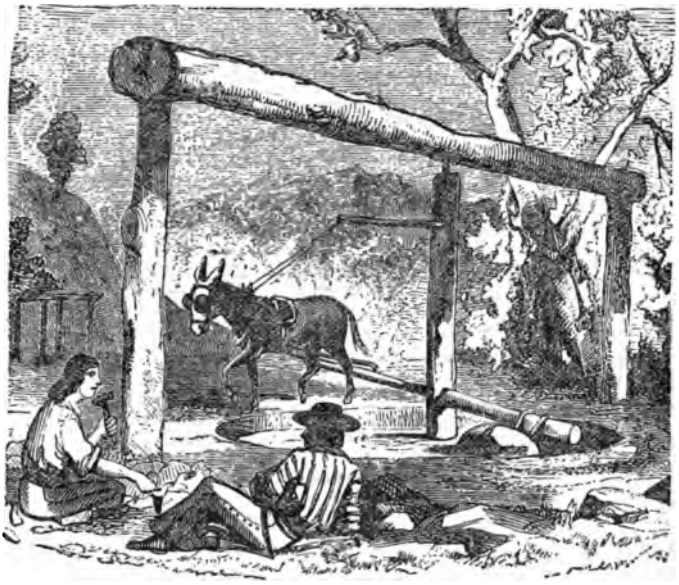
[2] March 1, 1897.

[3] Several years ago the Society for Mineral Industry (French) appointed a commission com posed of M. Fèvre, mining engineer, M. Place, director of the Rochebelle mines, M. Bessard director of the mines of Cessons, and M. Lange, engineer of the Rochebelle mines, to examin into and report upon the attempts made to construct electric lights adapted to the use of miners The experiments were made with four types of portative lamp, to wit: Pollak, Edison, "a trans portable but not portable," Breguet, and Stella. The report of the committee does not appea to have been conclusive, though the Stella lamp seemed to be preferred on account of its ligh weight and the perfection of its "appareil," which is, according to M. Georges Petit (Revu Scientifique, Tome XLVIII, p. 307), necessary, as "the danger (in coal mines) resides especially in the wires themselves." Let these be badly isolated by accident or ignorance and "a contact" may cause a spark and then an explosion. The light is not needed in the gangways, says M Petit, for even the horses know where to bob their heads though in the dark where the light i needed, as at the face of the wall, and the lamp from which it originated "must have the sam mobility of movement as the miner." It is useless, then, to dream of a dynamo installed abov ground feeding incandescent lamps below. It is useless to think the problem so easily solved.

set the hygienic properties of the expirations of a pneumatic motor, but it seems likewise justifiable to indulge in the expectation that "with increased knowledge as to the laws governing its transmission and use, with greatly increased efficiency in the methods of obtainining the air under pressure, and with the use of engines requiring but one-fifth of the original amount of coal required to drive the compressors, compressed air will rapidly take a leading part in power transmission. For mining and underground work it has advantages which can not fail to insure its increasing and continued use as its merits become better understood."

VENTILATION.

Whatever may be the fate of air as a motive power in operating the tools of mining, it is absolutely indispensable to the human machine. The State has interfered in this matter both at home and abroad,[1] and in several countries persons have been appointed to see that the law is executed. This inspection, however, does not always prevent disaster, and consequently is condemned by those for whose benefit it has been instituted. Mr. J. M. Forster, styling himself a miner, gives his ideas regarding mining inspection in England at the date of 1885 in very plain language.[2] Mining inspection, he says, speaking of coal mining, is useless unless it is thorough. It is of no use to examine the pit, shaft, furnace, and fan. It is the air ways and working places which need inspection, for it is in the far-away corners of the mine the ventilating current is weak, and there it is that great explosions have their origin. Now, how long would it take each subinspector to examine the 286 mines in his district? For the smallest, one day; for the largest, two or three days. In short, he can visit each mine once a year if he could devote his whole time to subterranean work, but this he can not do, for he is liable to be called away to the scene of some fatal accident.



El rastra.

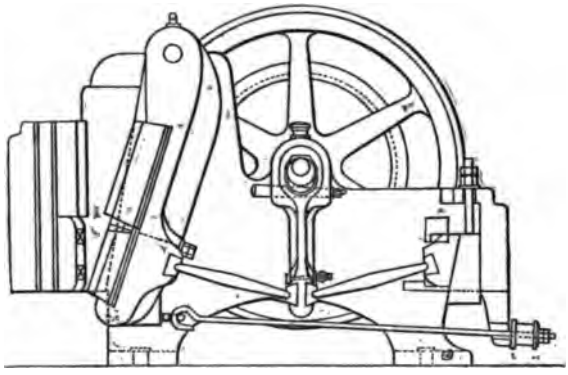
[1] See page 1041.

[2] Nineteenth Century, June, 1885. "Mining inspection a sham." In the issue of the following month a reply was made not materially invalidating Mr. Forster's criticism.

The old methods of dropping water down a tube into a water level to carry a current down into a mine, and the method of heating a column of air to carry a current up into the outside atmosphere have given place to exhaust fans or other machinery not so particularly special to mining as to call for mention. The greatest improvement is probably to be effected by a judicious study of the conditions of each mine, and not by inventions or even legislation.

METALLURGY.

The metals are mostly found in nature in chemical combination with oxygen, sulphur, carbon, and silicon, as has been stated several pages back, and, in addition, are embedded in matters which are called gangue. The first process, then, is to crush the metal, which is done in the case of the native or regaline metals in two operations. A Spanish-American method of conducting these is shown in the cut in which the person with the hammer breaks up the ore into nut-sized lumps, and a mule operating a "rastra" or drag slowly reduces the lumps to a paste or slime by the attrition of the two heavy stones strapped to the windlass, which drags them around in the pool; and it was said in 1859 that "the rastra is used with success at veins which have been abandoned as profitless for the modern



Blake stone breaker (Marsden).

quartz mill."[1] It is scarcely necessary to say that in the golden age of California this thoroughgoing but slow contrivance of Spanish inventive genius, when operated in California, was owned and managed by Mexicans.[2]

Among the very many machines that the last half century has produced to supplant the Mexicans, their hammer, their mule, and their drag, may be mentioned the Blake stonebreaker, which is said to have "rendered inestimable services to the miner, and to have constituted a most important step in advance in the art of ore dressing."[3] If the broken rock is to be still further divided until it becomes a pulp, the work is done by the old gravity process employed by the pile driver, whereby a weight is lifted and let fall, or by the direct action of steam upon a hammer, the weight of which is of comparatively small importance, or by an

[1] Harper's Monthly, Vol. XX.

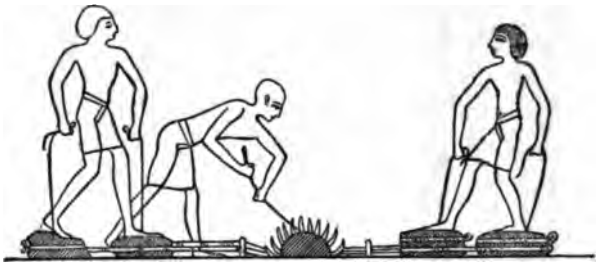
[2] Mr. T. A. Rickard observes in an article upon the "Limitations of the gold stamp mill" (Trans. Amer. Inst. Min. Eng., 1893) that "the use of a modern form of the arrastra at the Pestarena mill is quoted. The extraction, according to the report of the company, was 81 per cent in 1888-89, and 78 per cent in 1889-90. The loss of mercury in the respective years was 230 and 234 grams per metric ton, equivalent to about 7¼ pounds per short ton. The capacity of each mill was two-thirds of a ton per day. No doubt machines of the arrastra type will, in many cases, give the best conditions for promoting amalgamation; but, as compared with the stamp mill, most machines of the grinding class have a very small crushing capacity and consume a great deal of mercury."

[3] C. Le Neve Foster, D. Sc., (official) inspector of metalliferous mines in England.

Anglo-Saxon or quickened rastra process, whereby the pieces of ore are whirled around against each other and the bars of a cage, which is made to revolve with great rapidity. [1]

The size of the lumps broken off from the face of the wall, speaking of coal, has something to do with the amount of hand or machine labor required, both within and without the mine, to prepare it for commerce. Thus the hydraulic presses which force wedges into holes drilled into the seam of coal with the view of slicing it away without the use, in coal mines, of dangerous explosives, is said to bring down the coal in too large masses, for they required further breaking up. Possibly the same objection might lie against compressed air, which has already been applied to charging hollow cartridges of iron until they burst and rend the outer coal from the body of the seam.

The ore broken by the rock breaker may or may not be assorted by the hands of men or boys, and in Europe by children and women, but in either event two natural elements are called into play—one, gravity; the other, water—before the metallurgical processes are commenced. Take pieces of coal, "rock" or "gangue," and metals or stuff rich in metalliferous matter, and suspend them in water by moving them up and down, then the metals being heaviest will settle to the bottom, the gangue on top of the metals and the coal on top of the gangue. This



Smelting furnace of the ancient Egyptians and foot blast. Painting on the walls of a tomb in Thebes about 3,400 years ago. From Prof. A. Ledebur's Zur Geschichte des Eisens. (Ancient Egyptians, Wilkinson, p. 312.)

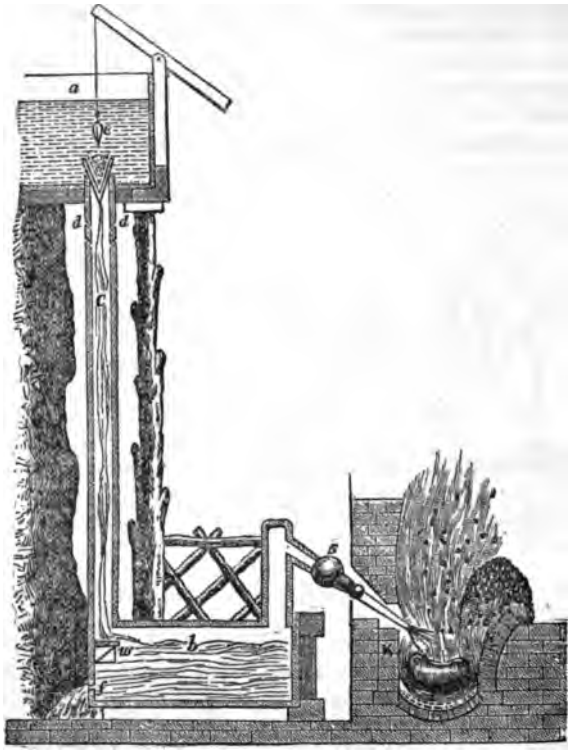
process is called "concentration" in the case of metals and "washing" in the case of coal slack. Formerly where the process was done by flowing water it was called buddling ("sluicing" of the California gold digger), and where done by agitating the pieces in a sieve (the panning of the Californians), is called jigging. Hydraulic mining of gold is jigging on an immense scale, the stream of a hose being directed against an auriferous bank, which breaks it down and washes away its less bulky contents. It will suffice to say that no improvements have been made upon the eyes of children and women nor the action of gravity or the use of water in the process of jigging save that it is now continuously carried on by appropriate machines, presenting many ingenious expedients to overcome obstacles in practice to the theory of "concentration."

The earliest representation of a blast furnace is painted upon a wall of a tomb in Egypt, which shows us the foot blast and possibly the bloom or mass of pasty iron.

[1] The Scientific American, September 26, 1896, gives the following popular account of the stamping machinery of the Calumet and Hecla Mine: "The stamp mills and copper-washing machinery used at the copper mines of Lake Superior have reached a high state of perfection. The advance in this particular which has been made there is wonderful. The early crude, iron-shod, wooden stamps that would crush a few tons of rock a day and hand buddles (separation of heavy metalliferous pieces from nonmetalliferous pieces by gravity in flowing water) have given place to large structures of stupendous machinery that crush 4,000 or 5,000 tons a day. Now 33 cents covers the cost of treating a ton of rock."

Another contrivance only lately disappearing from Spain and other parts of Europe is the Catalan forge, blown by a water blast or by a blacksmith's bellows.

This primitive rectangular open-hearthed water blast driven furnace was first changed into a sort of chimney by building up its sides and changing its form to that of a circle. Of nights the flames from such a furnace could be seen ascending 15 or 20 feet above its top. Eventually the heat thus wasted was utilized by closing the top and tapping the hot gases in the manner shown in the French furnace now pictured,[1] it being understood that such a furnace is charged with alternate layers of ore and fuel. Attention is called to the massive character of the masonry held together by iron bands and the rounded corners of the interior cavity.



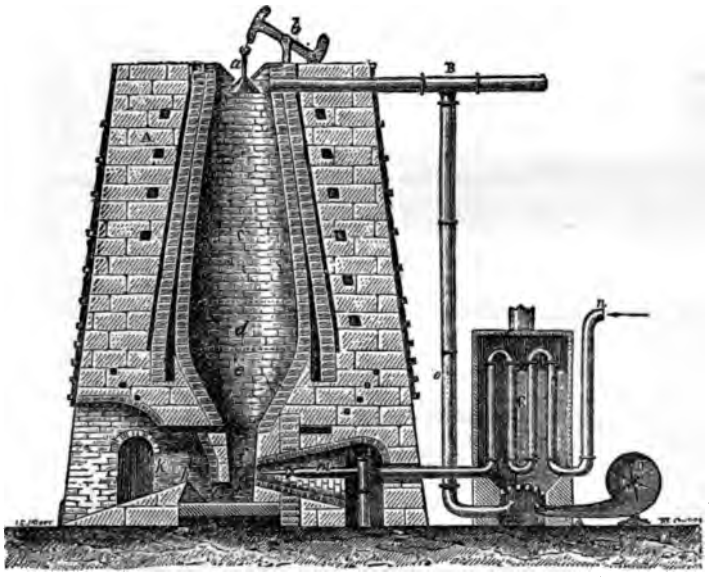
A Catalan forge and "tromp blast." (The current of air drawn into the pipe C by the trickling water falling through it feeds the tuyere S. From Greenwood's Iron and Steel.)

In the figure below given the hot gases are carried out of the furnace proper and emptied into a secondary chamber, through which a fresh-air pipe runs, where the gases are burnt by letting in atmospheric air, and the flame thus created heats the fresh-air pipes in the chamber, and necessarily the uncontaminated air being driven through them by machinery to the tuyère or blast nozzle. Through the invention by Sir Williams Siemens of a "regenerator gas furnace," this method of heating the blast, though an immensely important improvement, has in turn been antiquated as completely as the high furnace has antiquated the open-hearthed. As applied to the blast furnace, the Siemens furnace is called the Cowper or the Whitwell stove (there are a number of improvements), and as one can not

[1] On page 1057. From M. Gerardin's "Chimie."

be used continuously in connection with the blast it is necessary to have two, as shown in the engraving (p. 1058), which is taken from a work by M. Troost.

The Catalan open furnace, wasteful of iron and of fuel, and worked by a blast



Crosscut view of a blast furnace with a closed top and an arrangement for heating blast as it passes through pipe to furnace.

that was cooled by falling water, has thus, in comparatively recent times, been changed into a huge chimney, closed at the top, the gases of which are made to heat the blast of fresh air that is driven into the furnace to melt its contents. The

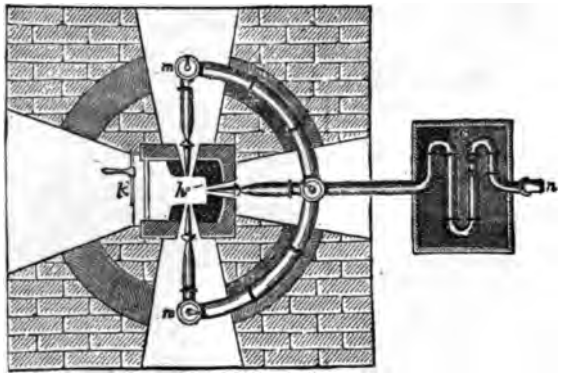
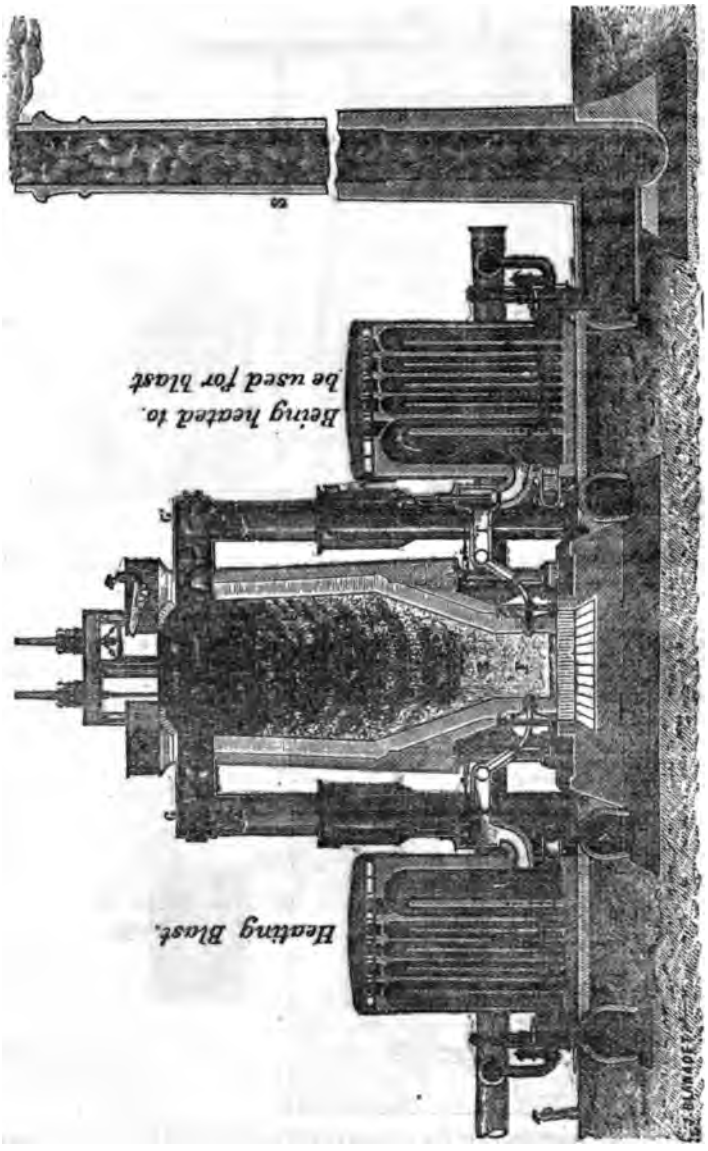


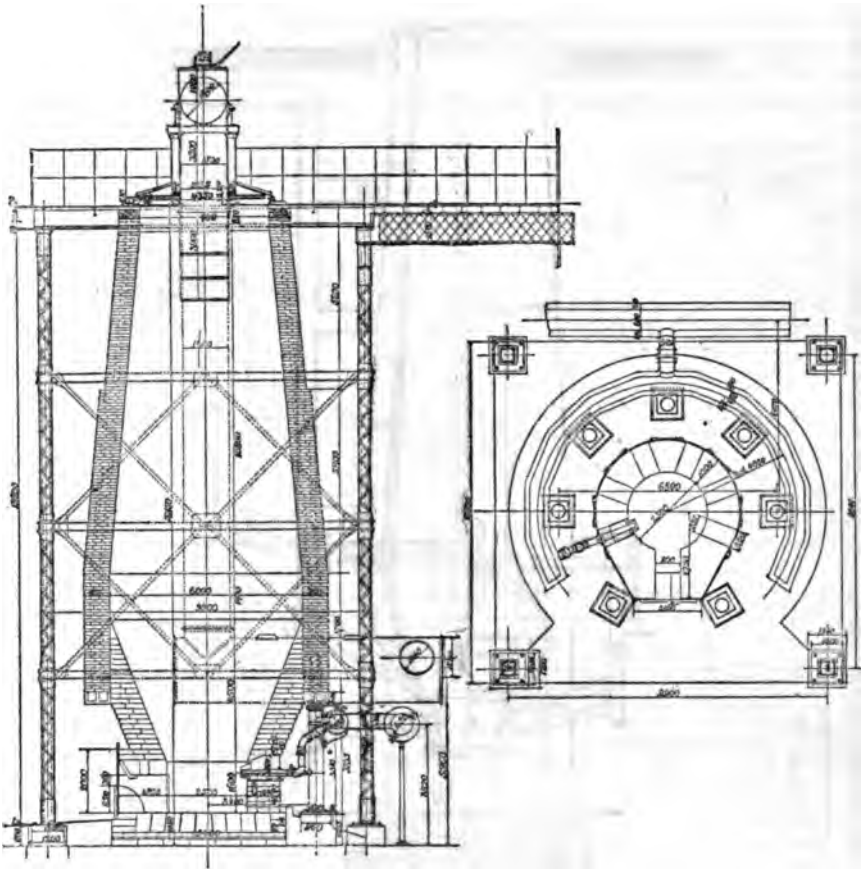
FIG. 142.—Three-fold arrangement of the tuyeres of a furnace looking from top of furnace.

temperature of this blast as it leaves the tuyère is from 1,300° to 1,500° F., the tuyères being protected by having a current of water circulating between their inner and onter shell. Mining districts in England that used furnaces 60 or 70


Heating Blast.
Being heated to be used for blast

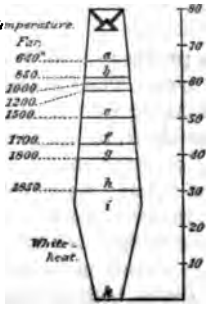
feet high and 16 to 20 feet across in 1861 now build them 90 to 100 feet high, with a diameter of 25 to 30 feet.[1]

The Germans have endeavored to improve the furnace by reducing the amount of weight that the upper truncated cone or reservoir throws upon the bottom



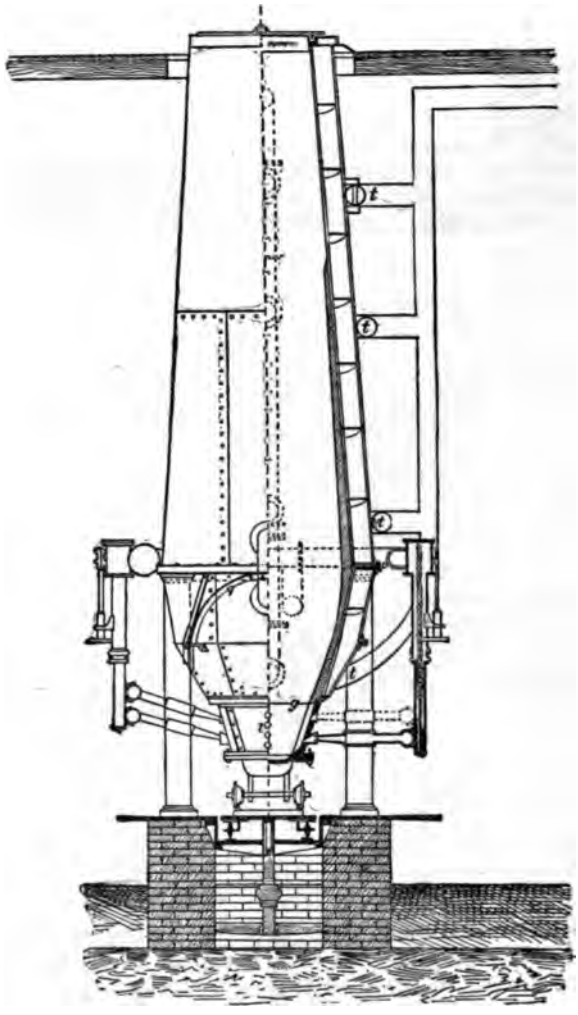
Blast furnace at Hörde, Westphalia, for fine-crushed ores.

cone or the "boshes." This has been accomplished by leaning the upper edge of the lower cone against the lower and pillar-supported end of the upper cone, as shown in the cut above, the whole being bound together by iron trestling, the



[1] The scheme representing the temperatures in a blast furnace is due to Sir L. Bell. The zone *a* contains the raw materials, ore, flux, etc.; in *b* the ore is partially reduced by carbon, and in *c*, where there is a dull red heat, the limestone added as a flux is decomposed into lime and carbonic acid. In the zone *e* carbonic acid oxidizes carbon from the fuel, forming carbonic oxide, and in *f*, which is a bright red heat, the reduced iron takes up carbon, forming pig iron. This action is continued in the lower zones, in which foreign oxides, such as silica and phosphoric acid, are also reduced, their bases uniting with the iron. In the zone *i* the iron is thoroughly fused, as well as the slag formed, by the union of the flux with the earthy matter. In the zone *k* the molten materials separate according to their specific gravities, the iron falling to the bottom and the lighter slag floating on top.

dotted lines completing the idea conveyed by the solid lines of the dra
The drawing (which has been taken from a report entitled Twenty-five Ye
Improvement in German Metallurgy) is rather technical, but is intelligibl
haps, by reference to the less intricate "pictures" that precede it.

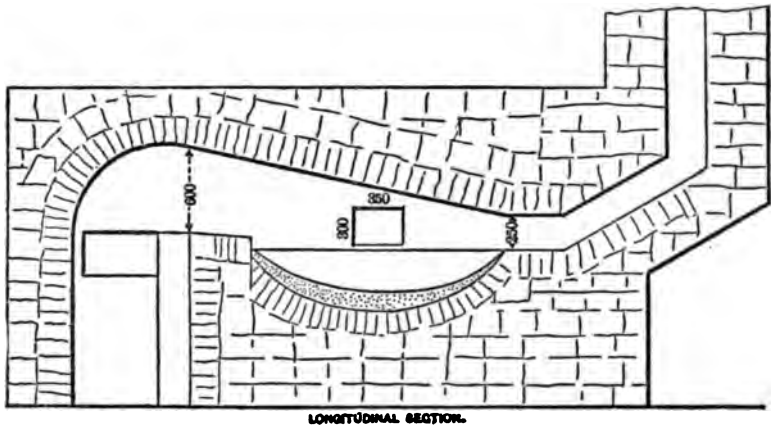


Wärtsilä furnace, 1884. Half elevation.

In speaking of the Catalan forge, it has been taken as the predecessor
"Haut fourneau," or shaft furnaces. This is not altogether true. The C
forge, open-hearth process, or bloomery, has the function of making weld i
one continuous process, and as such its successors are not the shaft, or, a
are usually called in English, "blast" furnaces, but a class of structure
methods called "by the direct process." The direct process of getting wel
is very costly of the raw iron contained in the ore, just as the indirect proc
the shaft furnace is costly of labor and perhaps of fuel. An illustration of
or shaft bloomery used in Finland was given among the Transactions
American Institute of Mining Engineers.[1] The walls of the entire body

furnace are of wrought-iron plates, and are double. The blast can be admitted at different levels or in the hearth itself. The blast, passing spirally around between the iron walls, is given a temperature of 300° to 500° F., and, by means of a system of dampers marked *t* on the cut, can be emptied into the hollow between the walls at certain levels. The furnace proper ends at the line of *g*. Below that is a movable hearth having holes through which the slag runs into a wagon.

There are two systems of smelting, namely, in a blast and in a reverberatory furnace, whose characteristics, and peculiar conditions, have been stated by Mr. Richard Pearce in his address on the Progress of Metallurgical Science in the



PACHAMANCA FURNACE

Dimensions in Millimeters: 1⅛ in. = 1000mm.

West, as follows, having reference, perhaps, to the complete reduction of the lead and copper contents of the gold and silver ores of the Cordilleran range:

	Blast-furnace system.	Reverberatory system.
Atmosphere	Reducing	Oxidizing.
Fuel	Coke, charcoal	Coal, wood.
Degree of concentration	Low: 6 or 7 in 1	High: 20 in 1 before separation of silver.
Per cent of base metal required to collect the precious metals.	15 per cent of lead.	3 per cent of copper.
Lime as flux	Necessary	Unnecessary.
Calcining pyritiferous ores	Should be complete	Not necessarily complete.

[1] By Mr. F. Lynwood Garrison, Philadelphia, Pa.

The old-fashioned reverberatory furnace in use ten years ago, with a capac of 10 tons per day and a ratio of fuel to ore of 1 to 1½, would stand no cha whatever in competition with the present style of blast furnace. But cert changes in the construction of the reverberatory within the last two years h increased the capacity to about 25 to 27 tons per day, with a ratio of fuel to ore 1 to 3. This, perhaps, is the highest record reached by reverberatory smelti except some work said to have been accomplished in Montana by introducing r hot ore into the furnace direct from the roasting cylinders.[1]

A primitive form of the reverberatory furnace, still used in Peru, is given in t cut. It is said that "the most recent development of the reverberatory furn resembles the earlier form in the construction of its bed, but is fired by gas p pared in an entirely distinct apparatus known as a "gas producer."

The regenerator furnace of Sir William Siemens has been spoken of when ill trating the utilization of the waste gases of the blast furnace. There the h gained by the operation of the "regenerators" in the Whitwell or other form

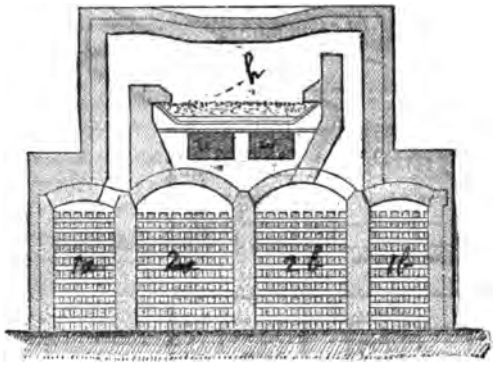


FIG. A.

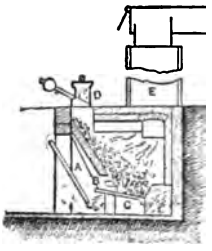


FIG. B.

FIG. A.—Vertical section of Sir William Siemens's regenerator furnace. The four chamb beneath the pan or furnace bed proper (*h*) are divided into pairs. They are open-worked bri work. In the *a* pair, 1*a* is used to heat the gas produced by the fuel, as shown in Fig. B, wh is called the producer. When the hot gases from the producer are let into 1*a*, cold air is let i 2*a*: the two currents pass up through the open brickwork and meet over the furnace bed hearth (*h*), where a fire has been kindled to ignite the mixture. The gaseous products of t combustion pass off and down through the *b* pair of regenerators, heating them. When th are hotter than the *a* pair, the process is reversed; and the furnace (*h*) being now thoroughly h the air and gas from 1*b* and 2*b* catch fire spontaneously on meeting above the hearth or bed (The furnace bed is made of iron boxes cooled by circulation of water (*w*).

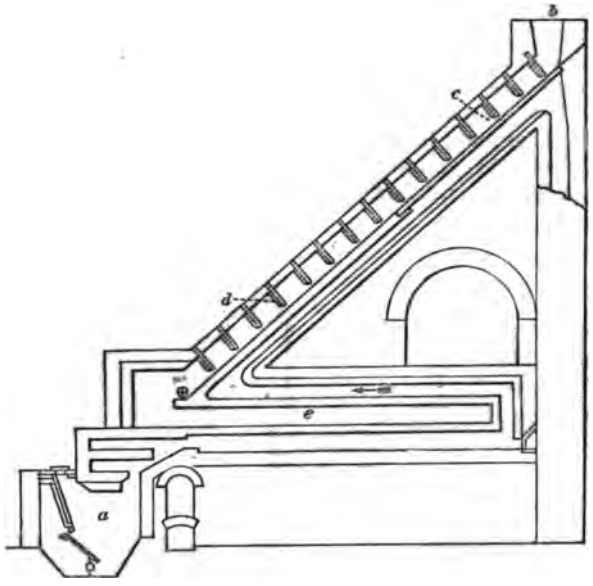
the Cowper stove is wholly a gain. But the original invention had in view gas producer as well as a gas regenerator. In the gas producer culm or slack, even sawdust, may be used, though soft bituminous coal is the best fuel. T inflammable chemical product of the combustion in the producer is principa carbonic oxid, called "air gas," and when this is subjected to a steam jet its c bon is hydrated and the product is called water gas; this, when burnt in the f nace proper or hearth in connection with warm, fresh air, bursts into flames a gives an intense heat.

The work of the mining engineer as a metallurgist is conceived in this article stop with the rendition of the metal, as that of the farmer does with the threshi of his wheat. The decarburization of iron in Bessemer converters belong to, o the forerunner of, a species of engineering which partakes more of manufacture what may be called commercial minerals, to distinguish them from the "e ments" of the books on chemistry, than to mining such oxides and sulphides the minerals as are found in nature. In this connection, however, two miner may be spoken of as having been first industrially prepared during the pres

[1] Address of Mr. Richard Pearce.

century. These are zinc, from its sulphur form of zinc blende, and aluminum, from its oxide form of bauxite.

Zinc sulphide,[1] being roasted in a reverberatory furnace to expel the sulphur, gives off sulphurous acid, which is valuable for bleaching, the refining of sugar, and the manufacture of ice, and as sulphuric acid is still more generally useful. Through the metallurgical skill of two Germans a furnace has been constructed by which some two-thirds of the sulphurous acid is conducted into condensing chambers and converted into sulphuric acid. A longitudinal section of this furnace is given.



Hasenlever and Helbig's furnace, by which two-thirds of sulphurous acid can be conducted into chambers and converted into sulphuric acid: *a* is a Siemans gas producer; *b* is the funnel through which ore is introduced and slides down the tube *c*, in which the partitions *d* make it spread out evenly in a thin layer; *e* is a muffle around which the gases ignited on leaving *a* pass on their way to the flue. The sulphurous acid is formed in the muffle, but "licks up" as much as possible of the sulphur of the ore on its way through the upper part of the partitions in the tube *c* until it reaches the last compartment at the top, where it passes off into a chamber.—Professor Dittmar in Encyclopædia Britannica.

Nor is this the only improvement in treating zinc blende, as that metal is now produced by electric deposition. The roasted ores are washed with wood ashes (lixiviated) in walled tanks coated with asphalt. The solution of zinc sulphate is then collected in the cistern (B), and when freed from iron, etc., is pumped into *c*, the "precipitating tank." The negative poles (*c*) consist of thin sheets of zinc; the positive poles (*d*) are of carbon, platinum, or lead. The zinc, being precipitated upon the sheets of zinc, copper, or brass, is easily removed, and the lye water, being rendered acid by the elimination of the zinc, flows away continuously through pipes (*e*), in order to be used for dissolving fresh masses containing zinc oxyde.[2] (See cut page 1064.)

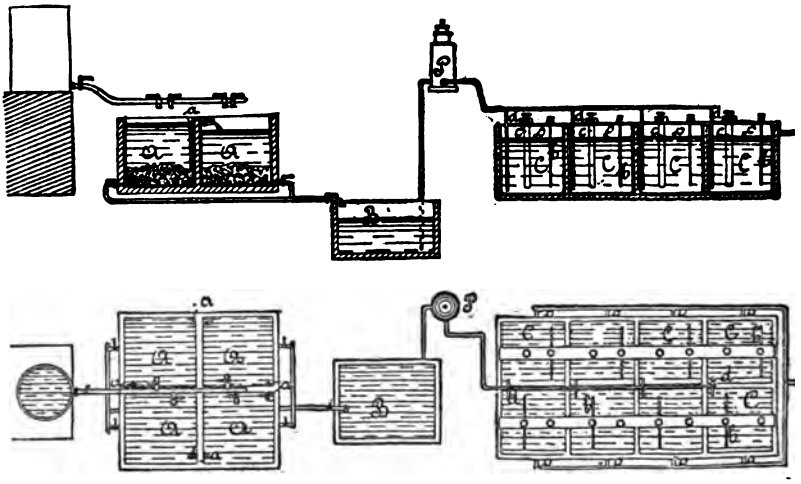
In this way the manufacture of zinc "has been revolutionized;" but though its manufacture is cheapened and the manner of its reduction changed, the revolution

[1] Quoting Professor Dittmar, mainly.

[2] Description of process and cuts taken from Chemical Technology, Wagner, translated by Crookes, New York, 1892.

has left the chemical qualities of the metal unchanged. In the fire proc after the ore has been desulphurized, it is, in one operation, put in a low furn in which are built a number of muffles, whence the metal is distilled over in chamber, from which it flows into the moulds. The ignorance of the metal gic property which zinc has of becoming malleable at a temperature of ab 266° F. was the cause of its being so long neglected. "The introduction of z among the useful metals," says a French professor, "is one of the most beaut conquests of our age." Perhaps such language is more appropriately applied the new metal, aluminum.

Davy, Brezilius, and Œrsted having failed to isolate aluminum, it was at obtained chemically by Wöhler by the medium of potassium, and in 1854 ma factured by Sainte Claire Deville, by the medium of sodium, in commercial qua ties. "Since that date," says Professor Troost, of the Faculty of Science, Pa "industry has been in possession of a new metal, which possesses remarka qualities, fitting it for many important applications in the arts," and, he may h added, for metallurgical synthesis in forming new industrial compounds. It not until within recent years, however, that the natural compounds of the m



could be attacked by agencies sufficiently economical in their operation to warr the production of aluminum. In 1879 Sir William Siemens patented his Siem electric furnace, which was the forerunner of that class of metallurgical agenc It consisted of a large crucible (connected with the poles from a dynamo), wh was placed in a vessel filled with charcoal. Iron, steel, and platinum could melted in such a crucible.[1] In 1885 the Messrs. Cowles, of Cleveland, obtaine patent for an electric furnace, and other inventors soon came forward. T electric metallurgy received a new direction entirely distinct from its use in metallurgy of silver and copper. Discoveries of this kind invite reflection. In preface as translator of the Baron de Joustrorff's "Practical Treatise on Me lurgical Chemistry" (Paris, 1891), M. Ernest Vlasto speaks of the change in French practice of that art in the following strain:

It is now nearly twenty years since I entered the great iron works of the Mes Wendel at Hayange. The function of the chemist in those days was far fr what it has since become. Then all that was expected of the laboratory was estimate of the amount of iron, silica, lime, and alumina in a given ore, or

[1] R. L. Packard, in United States Census, 1890; also J. Fleury, in Revue des Deux Mon L'Aluminium, first January number, 1893, p. 150.

amount of the ash in coke; hardly more than just that. Practical forge masters valued the form of a blast furnace by the look of the slag from it, and wrought and cast iron by the appearance of its fracture with a serene indifference to what its internal composition might be. Some years previously, indeed, forge masters had asked contemptuously, "What do I want with a chemist in my establishment?" and no one permitted himself to indulge in the extravagance of a laboratory except through vanity or for an advertisement. But the echo of the German cannon woke up our engineers. We began to study the steel guns of Krupp and the manufacture of this new steel. The war once ended, industrial metallurgy made a remarkable advance among us. We studied more—we studied what the English were doing. In short, we put ourselves to the task of analyzing a metal so that we could reproduce its character in any desired form.

In the way just described by M. Vlasto the possibilities of the synthetic mineralogy spoken of some pages back are evident.[1]

WHAT IS TAUGHT IN MINING SCHOOLS.

In the foregoing, after speaking of the mining-school curriculum from a theoretical point of view, we first briefly considered the manner in which the State has become connected with the exploitation of the mineral wealth within its borders, then the value of that wealth, and finally the improvement in the methods of treating it. In brief, it has been implied that a scientific study of mining with a view to a conservative treatment of the deposits with which nature has endowed the country as the basis of its industrial prosperity is well worth the study of our publicly endowed institutions of education. The selection of this social conception of mining engineering as a basis upon which to operate a school of mines may possibly be unfortunate, but the remark may be ventured that some conception beyond the mere personal aggrandizement of the pupil is absolutely necessary to create a successful school or system of schools.

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[1] In the course of conversation in regard to the progress of metallurgical engineering, Mr. J. H. Blodgett informed a colleague of the Bureau of Education of the following circumstance, to wit:

An establishment converting pig or other forms of manufactured iron into manufactured articles of malleable iron was accustomed to draw its supply of the raw material from a corporation mining and smelting ore in Michigan. The manufacturing establishment in question had the habit of testing the fitness of the raw iron for the purpose of their manufactures. On an occasion of this kind it became evident that the structural or internal or chemical properties of the iron received was different from that furnished by the Michigan mining and smelting company upon former occasions. An inquiry was instituted which developed the fact that formerly the Michigan company had smelted their ores with ores obtained from the lands of another owner. Finding an apparently similar ore in their own land, however, they ceased to purchase the accessory from another and used their own instead. This produced an iron that was unfitted to the uses to which the manufacturing establishment designed to put it.

This memorandum was sent to the manufacturing establishment concerned with the remark that "this statement is thought to have some bearing upon a statement which may be made in print, that the examination of a metal, if rigorously carried out,—if analyzed in view of the services it is to be called upon to perform,—will eventually lead to the production of raw material suited to any given purpose." To which, in due course, the following courteous reply was received:

ROCKFORD MALLEABLE IRON WORKS,
Rockford, Ill., July 6, 1897.

MY DEAR SIR: Your favor of the 3d at hand. I remember the instance to which you refer in regard to the trouble I had with iron a number of years ago, and your statement of it is substantially correct. At the present time the conclusions of your friend are carried out in our line of business; that is to say, all iron we purchase on a guaranteed analysis specified in our orders for iron for our purpose, so that now each car of pig iron we receive is accompanied by a chemical analysis of its different constituents; in fact, nearly the whole pig-iron business in this part of the country is done in the same way. When we make a contract or order for pig iron, the percentages of the various constituents in the pig iron must come up to those specifications. The manufacturers of the pig iron buy their ores and fuel to get the results required by those to whom they sell. In addition to that, nearly every concern of any importance, especially in our line of business, have their own chemist, so that the raw as well as their products are analyzed and kept very close to the standard required. Each smelting furnace have their chemist, so that all ores, fuel, and flux are analyzed as used from day to day.

I think of nothing further that I could add to what I have above said.

Very respectfully,

A. D. FORBES, *President.*

J. H. BLODGETT, *Washington, D. C.*

Yet it is especially necessary and fair to say that this is not the argument for the study of mining in schools advanced by those who have attacked or defended the education of a mining engineer. "Let it be admitted," says one, "that the mining population is insignificant in number, that only 6,000 mining engineers are required in the United States; nevertheless the value of the material they produce makes them the most important element in the entire population."[1] Another specialist in engineering observes:

As for mining engineering, what is there about the ordinary work of the ordinary mining engineer which requires a different training from that of a mechanical engineer? Chiefly a certain amount of metallurgical and prospecting or sampling work. But to become a specialist in this kind of work a man should be a chemist and metallurgist at once and nothing else. * * * After a mine has been discovered * * * the chief work of the mining engineer is to open and operate the mine advantageously, and the knowledge and experience of a civil or mechanical engineer gives just the right preparation for this kind of work.[2]

To these very interesting statements may be added that of Professor Hoffman, of the Technical University of Berlin.[3] "We Germans are producing more scientific men than we can absorb, but we have the export trade in that commodity entirely to ourselves. Two or three years ago I was traveling in the United States, and wherever I went I found German chemists, and they were at the head of every industry to which scientific knowledge is applicable, chemical works, gas works, whatever it was a German was at the head of it."

However superior the Anglo-Saxon may be as an exploiter of nature and an inventor of labor saving or quickening tools, nevertheless in metallurgical or biological chemistry the genius of the race is not so pronounced as that of other nations to which belong a De Saussure, Dumas, Boussingault, Gay-Lussac, Liebig, Berthelot, and Pasteur, or more especially a Kirchhoff, Wöhler, St. Claire-Deville, Bunsen, Plattner, and Siemens. Men who have studied under such professors or their rivals are not turned back at Castle Garden, and American mining has fostered German mining education.

For one hundred and thirty-one years the Royal Saxon Mining Academy has been in existence, and we learn that the French school of mines was organized in 1778. Since 1851 there has been a not very successful attempt in England to provide such a State school. It, therefore, will be interesting to examine the characteristics of these schools to account for their prolonged vitality.

A comparative study of the programmes of the State schools of mines of the Kingdom of Saxony, the Republic of France, and the United Kingdom of Great Britain conveys the impression that the German school has avoided the tendency to turn out acute mining critics and the other tendency to make the school of mines an institution for training "science teachers" (i. e., school-teachers instead of engineers), or a college in which science is squarely opposed to literature as an educational agency. In Saxony the State owns the mines; in France the State in some degree is interested in them; in England the State merely inspects them by

[1] The Growth of American Mining Engineers and their relation to the Mining Industry.

[2] Engineering News, August 11, 1891, American Engineering Schools. But cf. also the answers received by Prof. H. S. Monroe, New York City, mentioned by him during a discussion on the demand for mining engineers in 1893. (1) The demand is small; (2) the course of a mining school is difficult; and (3) costs much time and money; and (4) it is possible to become a mine manager without going through a school; and (5) mining-school students do not come to schools from mining districts; and (6) other professions draw off students, particularly in the University of California, Washington University, Massachusetts Institute of Technology, and the School of Mines of Columbia College, where there are many parallel courses; and (7) prejudice against [college men; these answers seem to be from colleges], and (8) miscellaneous considerations (p. 2 of advance sheets of Transactions of American Institute of Mining Engineers).

[3] As quoted by the Right Hon. A. J. Mundella, M. P., in an address delivered as president of the Association of Technical Institutions, January 24, 1890, the remark being made personally to Mr. Mundella.

virtue of its police powers and the omnipotence of Parliament. It would be natural, therefore, to expect that the German Kingdom should organize its school so as to obtain engineers who mine, that the French school should turn out highly educated mining scientists or philosophers, and that England, where the miners themselves had asked for a school,[1] should confine its instruction to inspection for the protection of the life and the health of the miner.

The Royal School of Mines has had a checkered career since its establishment in 1851. By 1848 the violent opposition to Lyell's conception of the evolution of the crust of the earth had so far subsided that in that year he was knighted, eighteen years after the publication of his Principles of Geology. The effect of his two visits to the United States, in 1845 and 1849, upon American scientists is easily recognized in the letters of William Barton Rogers, so prominently connected with the Geological Survey and University of Virginia and the Massachusetts Institute of Technology,[2] to say nothing of the effect of broadening the horizon of the English geologist by his researches upon the wider and more massive field of North American formations—the Passes of the Mississippi and the alluvial plain the river is creating, the vegetable accumulations of the Dismal Swamp as illustrating the formation of possible coal beds, and Niagara Falls as a marker of time for the recent geological past. The effect in England must have been more intense, and a geological survey and a mining school were established. Later on the School of Mines became "Division B" of a "Metropolitan Science School," but by 1859 the Metropolitan School had disappeared in its Division B, and by 1871 the institution became almost entirely a normal school for preparing the science teachers then called for by the Parliamentary grants in aid of science. In 1881 the school was reorganized into the Normal School of Science and Royal School of Mines, and lately into an institution called the Royal College of Science, to which the "Royal School of Mines is affiliated."

Quite different has been the life of the French School of Mines at Paris. The person who is selected to enter that institution has already received two educations—that is, has been subjected to two species of instruction. First, he is instructed in his native and in foreign languages, including Latin and Greek, and in college mathematics. Having distinguished himself during this course, he is permitted to enter the École Polytechnique, where he receives his second education. The course of the École Polytechnique has been accused by one of its critics as drafting off the best brains of France merely to make learned engineers for the bureau service of the State, and has been defended as being a "great physico-mathematical encyclopedia," which is specialized as an educational institution, so as to develop the scientific sense or instinct and to furnish each pupil with the ideas that later on will serve him when engaged in professional work. In short, the school produces neither engineers nor officers. Its rôle is at once more elevated and more modest, and is to prepare students for the special schools, such as the civil-engineering school called the School of Bridges and Roads, the School of Mines, the Artillery School, where technical instruction is given.[3] In this École Polytechnique the student receives his second education, breathing an atmosphere saturated with mathematical language and generalizations of mechanical forces, and he is taught to theorize upon matter as philosophy theorizes upon intellect. Having passed successfully through this school, where the discipline is rigid and the instruction thorough in the highest sense, the students who are to become State mining engineers are selected out and appointed by the Government to the

[1] So the expression "mining districts" is taken.

[2] Life and Letters of William Barton Rogers, by his wife; Boston, 1897.

[3] Revue Scientifique, first volume of 1887; also M. Chandos's attack in same volume.

School of Mines or other engineering institution.[1] Turning from these generalities, let us consider more particularly—

THE ROYAL SAXON MINING ACADEMY AT FREIBERG.

Saxony is one of the twenty-four States of the federated German Empire. Of inhabitants it has little more than one-half the number possessed by Pennsylvania, and of area not quite one-eighth as much. Its mines furnish one-sixth the weight of coal and ore annually raised in the German Empire, or about 16,000,000 tons, which are valued at $15,000,000, being one-tenth of the value of the mineral product of the mines of Pennsylvania and one-eighth of the value of the products of the mines of all the Imperial German States. The Kingdom is old. It befriended Martin Luther and joined Gustavus Adolphus in defending the Protestant cause. Its compulsory school law was the first ever promulgated, and its industrial organization and system of education are unsurpassed. The Mining Academy at Freiberg is now one hundred and thirty-one years old, and seems still to be in vigorous life.

At the close of the year 1895 twenty-one persons were graduated from the Freiberg Academy of this little State that has about one hundred and fifty mines within its borders, mostly of iron, argentiferous lead, and coal. For the period elapsing between 1884 and 1896 the attendance at this academy increased 23 per cent, but as it fluctuated in a remarkable manner the character of the increase is given in diagrammatic form as shown on page 1069.[2]

It will be seen that the school has attractions for foreigners. From 1872 to 1892 it graduated half as many mining engineers as all the American schools put together, and the school discriminates as to the character of its diplomas. Thus

[1] *Course of the École Polytechnique (from among whose graduates the students for the École des Mines at Paris are selected).*

The course is of two years and is given under the following heads:

Analysis.—Differential and integral calculus. This course lasts two years. It is completed by conferences upon the immediate application of the subject studied. In addition, the students may be called upon to show their knowledge of the subject, on paper.

Descriptive geometry.—Different modes of representing bodies; study of the principal geometric surfaces. This course occurs during the first year.

Stereotomy.—Carpentry and stonecutting. Course occurs in second year.

Mechanics and machines.—Course of two years. Completed by designing of the parts of a machine.

Physics.—Thermodynamics, electricity, and magnetism (first year), acoustics and optics (second year). Completed by experiments.

Chemistry.—Metals (first year), organic chemistry (second year). Completed by experiments.

Astronomy and geodesy.—Course occurs in the second year. Completed by experiments.

Architecture.—Course is of two years. Completed by designs and projects.

Military art.—Course of the first year.

History, geography, and literature.—History of the political, military, and moral greatness of the principal States of Europe in modern and contemporaneous times. Course of two years and is completed by essays upon historical subjects.

German, drawing, coloring drawings, during two years.

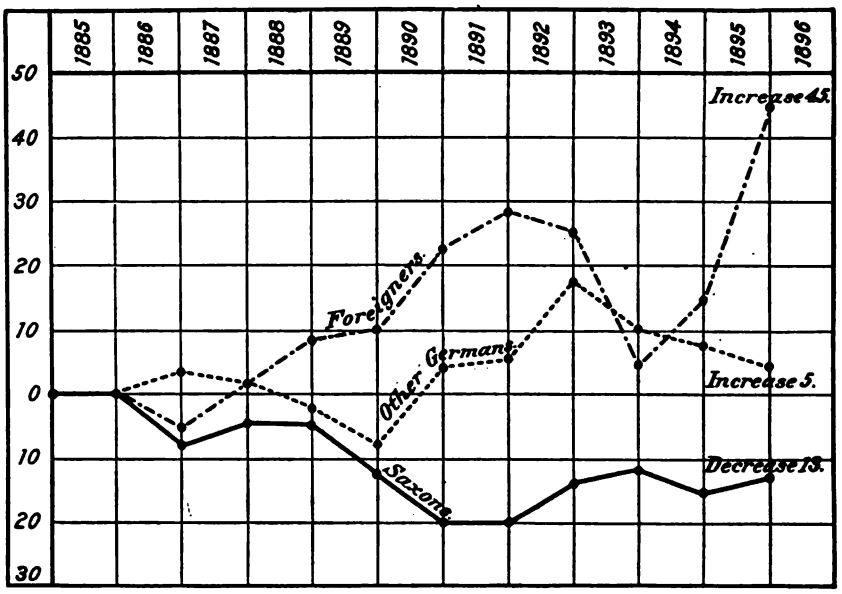
[2] The absolute figures are:

	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
Saxons	54	53	46	50	50	42	34	34	41	43	39	41
Other Germans (Deutsche)	50	52	53	51	48	42	54	56	68	60	58	55
Outsiders (nicht Deutsche)	59	59	54	60	68	69	82	88	84	65	74	104
Total	163	164	153	161	166	153	170	178	193	168	171	200

the graduates in the mining-engineering course and in the metallurgical course were classed as follows:

	Mining course.	Metallurgical course.
Excellent (ausgezeichnet)	38	15
Good	103	75
Fair	74	49
Turned back	21	16
Total	236	155

It has been remarked above that there were 21 graduates from the Freiberg Academy in 1895. But these were not all indiscriminately dubbed mining engineers. Fifteen of them were graduated as mining engineers (Bergingenieur), 2 as



Change in the character of the attendance of the Mining Academy of Freiberg during 1885–1896.

mine surveyors (Markscheider), 5 as metallurgical engineers (Hütteningenieur), and 1 as Eisenhütten engenieur, or metallurgical engineer for iron. As this mining academy is intended to give a complete scientific education to the mining engineer and metallurgist, the student on entering must be 18 years of age and have graduated from an institution called a gymnasium, or a realgymnasium, or a high-grade scientific school, the value of the diploma of which is equal in quality, though not in quantity, to the degree of a "small American college."

The American Mining School.

In speaking of the mining schools of Europe no mention has been made of the fact that they are State-supported institutions. The importance of finding means to conduct the wars in which it became involved probably induced the first French Republic, in 1794, to create an "agency of mines," to study the questions relating to the mineral resources of France, possibly the first geological survey, and on the 1st of Vendemaire, in the Year 1 of those radical reformers, was issued the first number of the first Journal des Mines, which opened with these words: "Liberty

gives new forms as well as new virtues to those who fight for her. The soil of France is as rich beneath as upon the surface. It is time that the genius of Liberty should avail herself of the natural treasures which have been held in reserve for her. The Committee of Public Safety has become convinced that the interest of liberty requires that the mines should be vivified. An agency has therefore been established under the authority of the commissioner of firearms and gunpowder, which is to occupy itself especially with the subject." It was about this time that the French school of mines was firmly founded.

The geological surveys of the several States may have caused the creation of the American mining school, either by suggesting their value for educating engineers or providing geological surveyors. It is certain that the first attention mining engineering received from American schools was in the shape of courses in geology, mineralogy, and assay of mineral-bearing rocks, which was a course in "general science," as at the Rensselaer Polytechnic Institute, or the development of a civil-engineering course, as at several institutions, or even of "natural philosophy," as at the University of Virginia, where the course was described as an education for directors of geological surveys, their assistants, prospectors, and assayists. As the idea of a mining school began to be entertained, we find it in one case connected with the object of "promoting the interests of the university and the community at large," and that "the committee on the school is authorized to associate with themselves from time to time such gentlemen as are interested in the development of the mineral wealth of the country," and finally the positive expression, which the others may have implied, that the object of the mining school is "the advancement of the interests of science and in connection therewith to develop the mineral resources of the country." But the origin of the American mining school bears evidence of coming from Great Britain.

It has been mentioned that in 1854 a metropolitan science school had been founded in England. The plan of the school was this:

A. General division for those who desire a general knowledge of applied science. (Due to the desire of the Government to educate teachers competent to teach science schools outside of London.)
B. Mining and metallurgical division. (Due to the petition of the mining districts.)
C. Technical division for those who desire to engage in other business than mining and metallurgy. (Due to the petition of the chief manufacturing towns.)
D. Workingmen's division to afford instruction to workingmen by evening lectures. (Due to the rise of the "university-extension" idea.)

This English school was kept constantly in print, by the unquiet life it led, until in 1859 its name was changed to the School of Mines, and in 1862 reorganized with a view to specializing it as far as possible as a school of mines, the courses being (1) mining, (2) metallurgy, (3) geology. In the United States, about 1860, a prospectus of a Massachusetts institute of technology, to be a society of arts, a museum or conservatory of arts, and a school of industrial science and art, speaks of the Conservatory of Arts and the Central School of Arts and Manufactures of Paris and of the School of Mines and the Museums of Geology and Botany of London as worthy of reproduction in America. In 1862 the first committee of the Massachusetts institute was "on mineral materials, mining, and the manufacture of iron, copper, etc." In 1864 the department of practical geology, mining, and metallurgy was deemed so important that a separate pamphlet was printed outlining its course, and in the catalogue for 1871–72 the department of geology, mining engineering, metallurgy, and paleontology was unmistakably prominent. In fact, it is possible to surmise that the Massachusetts institute was about to be specialized, as far as possible, toward a school of mines, as in the case of the English school. It will be remembered that William Barton Rogers, who made the geological survey of Virginia, was the first president of this school as well as one of its founders.

In 1863 a proposition[1] was made to Columbia College, in New York City, to establish a school of mines and metallurgy. This proposition was adopted. A school of mines was opened in order "to furnish the means of acquiring a thorough scientific and practical knowledge of those branches of science which relate to mining and the working up of the mineral resources of this country and to supply those engaged in mining and metallurgical operations persons competent to take charge of new or old works and conduct them on thoroughly scientific principles." As finally settled upon in 1864–65, the course came to resemble rather closely that of the English school, as it consisted of (1) mining, (2) metallurgy, (3) geology and paleontology, (4) analytical and applied chemistry. In three or four years civil engineering was added to the course of this School of Mines, whose object was now stated to be to give "students the means of acquiring a thorough knowledge of those branches of science which form the basis of the industrial pursuits that are to play the most important part in the development of the resources of our country." In other words, the Massachusetts Institute of Technology, a general institution, seems to have tended to specialize into a mining school, and the Columbia College School of Mines, a special institution, seems to have very soon begun to drift toward a general engineering school. It is scarcely necessary to remark that during the seventies and eighties mechanical engineering and railroad surveying were offering great opportunities to students. As mining schools, neither the English or American schools have made great reputations. At least no foreign students flock to their halls for instruction.

An examination of the curricula of the present courses of mining engineering in the United States shows the following facts, to wit:

1. The course in "mining engineering," no matter what the name of the school may be, is always one of several courses in engineering, civil, mechanical, etc., taught in that school.

2. The course in mining engineering is composed of the same studies and they are taught in the same classes with the other generic kinds of engineering (mechanical, etc.) for the first and second year of the intending mining-engineering student's sojourn in the school.

3. The course in mining engineering is, during the first year of the course, more or less literary, though there are exceptions to this remark.[2]

4. The course in mining engineering specializes its curriculum to metallurgy, or to mine opening and exploitation, at the will of the student, save at the Massachusetts Institute of Technology, where the course is plainly a course in metallurgical chemistry, and at the School of Mines of Columbia University, where a fifth year is added to the course in order to give instruction in what may be called the strategy and tactics of mining operations.

5. The course in mining engineering is a four years' degree course, graduating either a "bachelor of science" or an "engineer," except that in the case of the Lehigh University and the Pennsylvania State College short courses have been introduced, and at the Michigan School, at Houghton, and at the University of California many special students are admitted.

The main distinction between the Saxon Academy, at Freiberg, and the American mining schools, outside of the personality of the institutions, to speak of them as though they were vital, sentient beings, is that the American school has a considerable amount of secondary or literary study mixed in with the technical study of mining. Compare the following statements of two American courses in mining engineering with the course of the Saxon Academy, set forth in Note D at the close of this chapter and, indeed, with that of the American school given in full in Note E.

[1] By Mr. Thomas Egleston, jr., subsequently the first professor of mineralogy and metallurgy.

[2] A very high authority in mining engineering and education has said on this topic: "In most of our schools, if not in all, the requirements for admission are too low. [It will be remembered that Professor Egleston is stating a fact, not making a charge of negligence.] The

INSTITUTION A.

TECHNICAL.

Geology.	*Metallurgy.*	*Mining operations.*
Crystallography.	Qualitative analysis.	Surveying.
Mineralogy.	Quantitative analysis.	Methods.
Geology.	Metallurgy of fuels.	Sketching and mining surveying.
Economic geology.	Problems.	Applied mechanics, or strength of materials.
	Metallurgy of steel, iron, copper, lead, silver, gold, etc.	Dynamics.
	Coal washing and ore dressing.	Hydraulics.
		Steam engine.
		Lubricants.
		Exploitation.
		Accidents.
		Steam boilers.
		Mine ventilation.
		Assaying.
		Haulage and ventilating machinery.
		Air compressors and other motor and buildings.

LIBERAL.

Mathematics and drawing.	General science.	Language and history.
Trigonometry (elementary).	Chemistry (elementary).	French.
Analytical geometry.	Mechanics (elementary).	German.
Calculus.	Physics (sound and heat).	Rhetoric.
Descriptive geometry.	Thermodynamics.	Outlines universal history.
Drawing.	Light.	
	Political economy.	
	Constitutional and international law.	

INSTITUTION B.

TECHNICAL.

Geology.	*Metallurgy.*	*Mining operations.*
Geology.	Assaying and metallurgy.	Surveying, topographical, and mine surveying.
Mineralogy.	Ore dressing.	Mining.
		Mechanics of materials.
		Applied mechanics.
		Mechanism.
		Roofs and bridges.
		Hydraulics and hydraulic machinery.
		Motors.
		Drawing furnace plans.
		Contracts and specifications.
		Foundations and masonry.
		Thesis.

LIBERAL.

Mathematics and drawing.	University algebra.	Language and history.
Solid geometry.	Descriptive geometry.	Mediæval and modern European history.
Trigonometry.	Analytical geometry.	Rhetoric.
General science.	Differential calculus.	French or German.
Chemistry.	Integral calculus.	
Physics.	Mechanical drawing.	

NOTE A.

THE SOURCE OF CARBON.

The formation in great variety of the compounds of carbon with the elements of water, that is to say, with oxygen and hydrogen, is the science of organic chemistry. It has been shown by experiments, which so far remain unimpeached, that the formation of cellulose, starch, etc., is done in the leaf and by the action of, let us say, chlorophyll. If there is no carbon (in the form of carbonic acid) present

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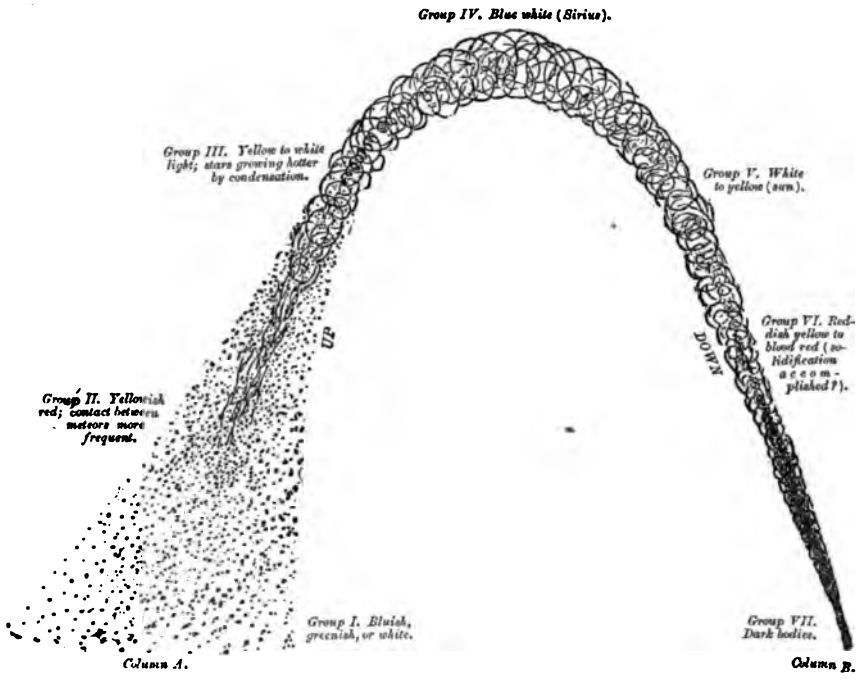
student enters so badly equipped that from a year to a year and a half is expended in teaching him the mathematics and other preliminary studies which he must use in the later years of his course, so that any application of these studies must be confined to within a little less than half of the entire school training."—Thoughts and Suggestions on Technical Education, by T. Egleston, Ph. D. Advance sheets (apparently) of proceedings to 1888 Transactions of the American Institute of Mining Engineers.

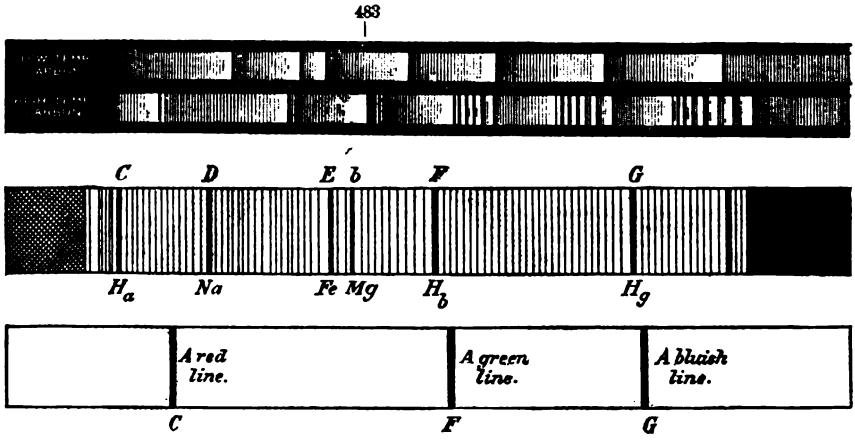
no growth will take place, no starch will be formed. Instead of being satisfied, then, with the dictum that the soil is disintegrated rocks, an inquiring mind might go back still farther and ask questions to which the spectroscope alone can give answer or suggest answers. In the "Chemistry of the Sun," and especially in the "Meteoritic Hypothesis," Mr. J. Norman Lockyer has given a place to carbon, or rather to the spectroscopic appearances of carbon, which make it as prominent in solar physics or chemistry as laid down in the Meteoric Hypothesis as it is in the organic chemistry of this planet. "The radiation and absorption flutings of carbon," says Mr. Lockyer, "afford the best means of establishing the connection between the physical and chemical nature of the various groups of [cosmical] bodies." These groups are arranged by Mr. Lockyer as shown in the cut, the more rapid ascent of Column A at Group III being due to a quicker generation of heat than the heat thus generated is dissipated in the falling Column B.

In this scheme Group II and Group VI are marked by the spectroscope as carbon stars. In Group II the condensing swarm of meteorites at the epoch, denoted by Group II, is not surrounded by an atmosphere-like envelope, if there is one, that is sufficiently thick to absorb the light of some state of heated carbon which



thus is emitted into space. Group VI, on the contrary, denotes a class of stars, each surrounded by a thick atmosphere or envelope which interferes with the perfect emission of light from some state of heated carbon, or, as it is said in the case of Group VI stars, shows "enormous carbon absorption." In short, a Group II star is a swarm of meteorites whose collisions are becoming more and more frequent as the swarm (under the influence, it may be supposed, of its vis viva, which, as such, must be a definite quantity determining at Group VII?) gathers itself together into a bunch, but radiating in the meantime less and less carbon light from its decreasing interspaces out into space, while a Group VI star is a solidifying globe with a red-hot crust of integrating rock surrounded by an atmosphere of unknown density and chemical composition. The spectra of many compounds of carbon with oxygen, hydrogen, nitrogen, chlorine, and sulphur, have been observed in the laboratories in this way, and it is found under certain conditions, which vary with the compound experimented upon, there are some markings, called flutings, which are common to all, which are not, however, uniformly interpreted by the learned. The main conclusions are that there are two systems of flutings which depend upon temperature only. At low temperatures (a coal-gas

flame into which pure oxygen is driven to make it hotter is a "low temperature") all compounds of carbon give a set of simple flutings. At higher temperatures there is a series of compound flutings, the brightest edges of which are at different places on the scale. At very high temperatures each compound gives the line spectrum (that is, black or bright-colored lines) of its constituents. Thus a molecule of marsh gas would give the spectrum of carbon and the spectrum of hydrogen, and carbonic acid the line of carbon and the line oxygen, the heat having broken up the molecule. Manipulation in the laboratory shows the difference between spectra of carbon at a low temperature and at a high temperature as follows: The line at 483 is not reproduced in the high-temperature spectrum, and is therefore taken as a sure indication of cool carbon because no fluting in the hot-temperature spectrum falls near it, which is not the case with the first two flutings at the right as you look at the cut.



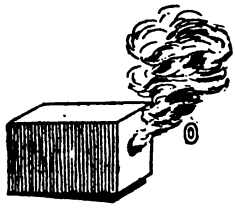
The upper spectrum is that of Sirius. It is an absorption spectrum, and the lines, which are black, cover the spectrum, such as an ordinary light ray let through the prism of the spectroscope would form, as though a grating had been let in upon the seven prismatic colors, the red being on the left. The lower spectrum is a laboratory or artificially produced affair, made by transmitting light through a tube containing hydrogen gas at atmospheric pressure; the red line at C, the blue-green line at F, and the blue-violet line at G shine out radiantly against the background of deadened prismatic colors, just as the black lines in the absorption spectrum of light from Sirius gridironed those colors in the upper illustration. Differences of atmospheric pressure or of temperature and of chemical combination may cause lines to move a little this way or that, though Mr. Huggins attributed the difference in place of the line F to the fact that Sirius is moving from us and we from it. It should be said that Mr. Lockyer uses the star α Lyræ instead of the more popularly known Sirius to represent his Group IV.

But what becomes of the carbon "phenomena" during the tremendous periods of time that must elapse during the course from Group II to Group VI? Group II shows flutes changing into lines; Group III stars show widening hydrogen lines as those stars get hotter; Group IV stars show "excessive hydrogen absorption," and their spectra are the simplest and their contents the hottest of all, while the Group V stars, such as our sun, show diminishing hydrogen, but greatly increased metallic absorption, chiefly iron, calcium, magnesium, and sodium vapors, which metallic absorption in Group VI is reduced, "while the carbon increases its intensity." "The reason why we have hydrogen absorption in such great excess in Group IV is possibly that most other substances, including carbon, have been dissociated (temporarily wiped out) by the intense heat resulting from the condensation of the meteoric swarm." The following representation of Dr. Huggins's photograph of the spectrum of Sirius, a popularly known Group IV star, will show that, though the whole spectrum is barred from one end to the other with "absorption" or black lines, that four lines are decidedly prominent, to wit: C, D, F, and G, the broad band-like bluish green line F being "characteristic" of hydrogen.

The condensation spoken of by Professor Lockyer has been reduced to a formula, and we quote Professor Newcomb's remarks in his astronomy to the following effect: "A curious law of cooling gases was discovered by Mr. J. Homer Lane, of Washington. If a globular mass is condensed to one-half its primitive diameter, the central attraction upon any part of its mass will be increased fourfold, while

the surface upon which the attraction is exercised will be reduced to one-fourth. Hence the pressure per unit of surface will be increased 16 times, while the density will be increased only 8 times. Hence, if the elastic and gravitating forces were in equilibrium in the primitive condition of the gaseous mass, its temperature must be doubled in order that they may still be in equilibrium when the diameter is reduced one-half. By losing heat the body contracts, but in contracting more heat is generated than what had to be lost in order to produce the contraction (p. 520). The value of this generalization is also vouched for by the high authority of Sir William Thompson, now Lord Kelvin.[1]

No one excelled the astronomer R. H. Proctor in his admiration for Saturn. He wrote a book about that planet and "his system," and quarrels with Laplace for his misconception of both in founding the nebular hypothesis upon them. In one of his essays he remarks: "Saturn's ring system is in reality a part as yet unfinished of his system of dependent bodies. It consists of multitudes of tiny bodies traveling in the same general plane. Hereafter, under the mighty forces of the planet's energy of attraction, this system of rings will be broken up to form two or three other worlds, akin to the eight satellites which already travel round the planet." Some interesting phenomena concerning rings on a small scale upon the face of the earth have been published by Prof. A. E. Dolbear, of Tufts College. They seem to show how a part of the atmosphere can be made independent, so as to be a form in the atmosphere.



In a box having a round hole in one end and a piece of cloth over the other place two saucers, one containing strong ammonia water, the other strong hydrochloric acid. The dense fumes may be expelled in rings through the hole by striking the cloth. The ring, once formed, consists of a definite amount of gaseous material or atmosphere in a state of rotation, made visible by the fumes. The ring moves forward in a straight line just as though it were a solid body, and if left to its own forces always holds itself up straight, as in the cut. It will push against anything that is before it; will, if moving parallel to a wall or table, move toward it and break up against it; but a light body like a feather or a thread will be apparently pushed out of the way in front of it, or in toward it if behind it. If two rings bump together at their edges, each one will vibrate with well-marked nodes and loops, showing that as rings they are elastic bodies, and that their period of vibration depends upon the rate of the rotation. If two rings be moving in the same line, one behind the other, but the hindermost moving the swifter, then the foremost one spreads itself, while the hindermost contracts itself and then passes through the first, both resuming their original form when without one another. If two meet in going in opposite directions, the smaller goes through the larger and may be held for a short time until the other has got some inches away. If two similar rings are formed at the same time, side by side, at a distance apart of an inch or two, they always collide, either destroying both or each may break at the point of impact and the opposite ends may weld together, forming a single ring, which will move as if it had been originally formed as one. In like manner three rings may become one, though sometimes the rings rebound at right angles to the plane in which they were moving; if moving crosswise, will bound up or down. The material of the ring rotates about the ring, but the ring does not rotate. (Matter, Ether, and Motion, by A. E. Dolbear, Ph. D., revised, enlarged, Boston, 1894.) It appears that Professor Tait first called attention to these singular phenomena.

[1] In foot note to lecture on "Sun's Heat," printed in Lectures and Address, v. 1, p. 377.

NOTE B.

THE WHITE ANT—A THEORY.

A few years ago, says Professor Drummond in his Tropical Africa, under the distinguished patronage of Mr. Darwin, the animal in vogue with scientific society was the worm. At present the fashionable animal is the ant. I am sorry, therefore, that the animal whose praises I am about to sing is, as an ant, an impostor, as it is not an ant, but a termite; and so far from being in vogue, this clever but artful creature is hated and despised by all civilized peoples. Nevertheless, if I mistake not, there is neither among the true ants nor among the worms an insect which plays a more wonderful or important part in nature.

When we watch the farmer at work and think how he has to plow, harrow, manure, and humor the soil before even one good crop can be coaxed out of it, we are apt to wonder how nature manages to secure her crops and yet dispense with all these accessories. The world is one vast garden, bringing forth crops of the most varied and luxuriant kind, century after century. Yet the face of nature is nowhere furrowed by the plow, no harrow disintegrates the clods, no lime and phosphates are strewn upon its fields, no visible tillage of the soil improves the work on the great world's farm. Now, in reality there can not be crops or succession of crops without the most thorough agriculture; and when we look more closely into nature we discover a system of husbandry of the most surprising kind. Nature does nothing obtrusively, and it is only now that we are beginning to see the magnitude of those secret agricultural operations by which she does already all that man would wish to imitate, and to which his most scientific methods are but clumsy approximations.

A white ant hill of the Lake Region of Central Africa.

Now, in Central Africa, though I looked for them often, I never saw a single worm. Even when the rainy season set in the closest search failed to reveal any trace either of them or of their casts. Where, then, are we to look for the animal having the agricultural function—the tropical analogue of the worm? The animal we are in search of is the termite or white ant. In traveling through the great forests of the Rocky Mountains the broken branches and fallen trunks strewing the ground breast high with all sorts of decaying litter frequently make locomotion impossible. But in an African forest not a fallen branch is seen. The termites have cleaned them up. The insect excavates an elaborate system of subterranean tunnels, which mine the earth sometimes to a depth of many feet or even yards. The material excavated from these underground galleries is formed into the huge ant hills which form so distinctive a feature of the African landscape, extending for miles and arranged in mounds each 30 or 40 feet in diameter and 10 or 15 feet in height. The brick houses of the Scotch mission station on Lake Nyassa have all been built out of a single ant's nest. A supply of bricks as large again could probably be yet taken from it. The work of the ant is also a work of denudation. Nowhere as on the forest-clad hills of the great plateau between Lake Nyassa and Tanganika are the termites so masters of the situation. If it is the case that in these most elevated regions of Central Africa the termite colonies attain their maximum development, then the fact is of much interest in connection with the geological and agricultural function they seem to serve, for here precisely it is that the tiny head waters of the Nile and the Congo set their course. Herodotus, with equal poetic and scientific truth, describes Egypt as a gift of the Nile. Had he lived to-day he might have referred some of it to the humble termites in the forest slopes about Victoria Nyanza.

NOTE C.

SOLIDIFICATION OF AIR.

To those who are familiar with Berkeley's conception and proof of the immateriality of the world wherein he talks away the substance of matter by the most rigid logic, so that the only answer to it is to appeal to matter, it will be interesting to describe a machine by which the common air we breathe is converted either into a liquid or a jelly-like substance.

In Nature for February 6, 1896, there is an account of the machine used by Professor Dewar to liquefy oxygen, one of the two gases of the atmosphere, and the atmosphere itself. It appears that M. Olszewski, a French experimenter, had stated that air can not be solidified. To test this dictum Professor Dewar repeated his former experiments on a larger scale. His statement before the English Chemical Society runs thus: If a liter (1¾ pints) of liquid air be exhausted in a silvered vacuum vessel half a liter of solid air is obtained, which may be kept solid for half an hour. The solid is at first a stiff, transparent jelly, which, when placed in a magnetic field, has the still liquid oxygen drawn out to the poles, showing that the solid air is a nitrogen jelly containing liquid oxygen. Solid air can only be examined in a vacuum or an atmosphere of hydrogen, because it instantly melts on exposure to the air, causing an additional quantity of air to liquefy. It is strange to see a mass of solid air melting when in contact with the atmosphere, and all the time welling up like a fountain. So much for solid air, which is made from liquid air. Let us now see how liquid oxygen is made in what Professor Dewar calls a convenient apparatus,—"A simple arrangement for the laboratory, capable of producing 100 cubic centimeters of liquid oxygen, using liquid carbonic acid gas at 110° F. below zero for cooling." Here is the apparatus:

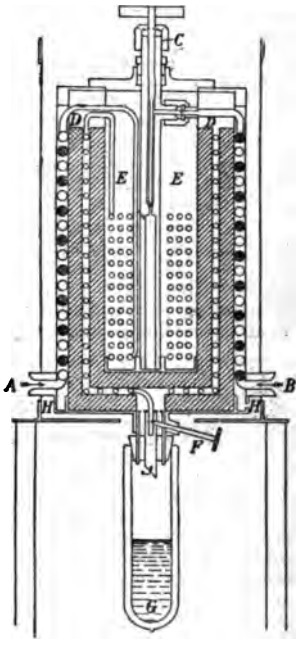


FIG. 1.—A, air or oxygen inlet. B, carbon dioxide valve. D, regenerator coils. F, air or oxygen expansion valve. G, vacuum vessel with liquid oxygen. H, carbon dioxide and air outlet. ○, air coil. ●, carbon dioxide coil.

NOTE D.

THE ROYAL MINING ACADEMY OF SAXONY AT FREIBERG.

The instruction at this academy is minutely divided into 64 topics, which are collected under 40 heads in the programme, taught by 17 professors or assistants. There are four courses in the school—one of four years for mining engineers, one for mining surveyors of three years, one of four years for general metallurgical engineers, and one of four years for metallurgical engineers in iron.

The first year of the mining engineering course has some resemblance to the "Physico-mathematical encyclopædia" of the École Polytechnique in France. It is preceded by a college education, but it is also preceded by a four months' course of a practical miner's course (practisch-bergmännischer Vorbereitungscurs) for those who desire to become students in the school in order that they may have the actual visual and practical knowledge for profitably following its courses. The studies of the first year are the calculus, descriptive geometry, theory of higher equations, spherical trigonometry, mechanics, study of metallic and nonmetallic substances, mineralogy, and practicum in crystallography, topographical drawing for mining engineers. The lectures on these subjects consume twenty-five hours a week during the entire school year, except the studies of higher equations and spherical trigonometry, which require four hours a week during the summer session. In addition, two hours are passed at descriptive geometry and two in the physical laboratory.

The second year the course begins to pass from the general to the particular. The calculus is now applied to the "quadrification, rectification, complanation, and curvature" of geometrical figures and physical problems. General physics

gives place to the study of the movement of a mathematical point, energy, dynamics and their applications, hydrostatics and hydronamics, geology and rock formation, mining literature and history, the more important minerals, surface and subterranean search for veins or beds, rock formation, exercises in classifying rocks, mineralogical and physical practicums, blowpipe analysis, and machine drawing. These studies occupy twenty-two hours of teaching a week and eight hours a week in laboratories or drafting room, except that classification of rocks occupies two hours a week only during the summer semester.

The third year, in addition to surveying and geodetic practicum, the following studies are introduced: The use and character of extractive machinery, ventilation, etc., under the name of special mining engineering, machinery taking the place of mechanics; veins and deposits taking the place of rock formation, the preparation of the ore for smelting, and finally general smelting. To these are added building construction and for coal "brikettiren," which is the process of compacting the dust of coal into bricks or "water-pressed stone." During this year machine drawing, principally of water and steam motors, is continued, four hours a week being devoted to it. Sixteen hours a week are given to lectures upon the aforenamed topics throughout the year, except that to labor-saving machinery are given five hours a week during the winter semester, and to the preparation of ore and coal, including coal-brick making, six hours are given during the summer semester.

The fourth year is almost entirely devoted to the consideration of practical sociological questions connected with the subject of mining, to wit: General law, mining law, mining and "metallurgical" statistics, capital, competition, labor, etc., hygienic conditions, but also mining geodesy and practicum, sketching mining buildings, exercises in preparing the ore or coal for commerce or smelting, and finally electrotechnic. Only four of the studies run through the whole year, to wit: Surveying, geodesy, hygiene, and electrotechnic, requiring seven hours of lectures a week, but to this must be added six hours a week of practice in mining surveying, four of sketching mining and metallurgical works, and two of electrotechnic. During the winter semester four hours of lectures are given to general law, one hour to statistics, and three to political economy. During the summer semester four hours are given to mining law and two to political economy.

NOTE E.

COURSES OF MINING ENGINEERING IN COLUMBIA UNIVERSITY, NEW YORK.

COURSES.

I. Excavation and tunneling—three hours first term. Professor Peele.

Excavation of earth—tools and methods; support of excavations; special methods for quicksand and other water-bearing material; steam shovels and other mechanical excavators: handling and transportation of excavated material; tables of comparative costs. Dredging—description of machines and methods for canal, river, and harbor work; handling of dredged material; costs of dredging. Explosives—black powder, nitroglycerin and its compounds, and other high explosives; their manufacture and use. Excavation of rock—hand and machine drills, methods of blasting, mammoth blasts, submarine blasting. Quarrying—plant and methods for quarrying different rocks. Tunneling—methods of driving and timbering; handling and transportation of excavated material; drainage and ventilation of tunnels; submarine tunnels; permanent lining of tunnels; accidents in tunneling; location of tunnels. Required of second-year students in the courses of mining engineering, civil engineering, and metallurgy.

II. Boring and shaft-sinking—three hours for three months, second term. Professor Peele.

Boring—methods and appliances for small depths and for deep boring; cable-tool or oil-well method; boring with diamond drill, for prospecting and other purposes; survey of bore-holes. Shaft sinking—methods and tools employed in soft material or in rock; special methods of sinking in water-bearing formations, quicksand; drainage of shafts; handling and hoisting of excavated material. Shaft timbering and other systems of lining employed in special cases. Required of second-year students in the courses of mining engineering and metallurgy.

II (A). Mining and support of mine excavations—three hours for one month, second term. Professor Munroe.

Theoretical considerations, methods of breaking ground in coal and metal mining, and support of mine excavations by pillars of mineral, by timbering, by masonry, and by rock filling. Required of second-year students in the courses of mining engineering and metallurgy.

III. Exploration, development, and methods of working—four hours first term. Professor Munroe.

Mineral deposits, characteristics of beds, masses, veins, and other deposits, and the irregularities and disturbances to which they are subject, as affecting the work of exploration and

mining. Examination and survey of mineral properties; relation of topography to geological structure; construction of maps and sections; and tracing of probable outcrops as a guide to exploration. Prospecting by ditches, pits, and deep boring. Development; choice of methods; location of openings. Working of deposits and support of excavations; methods applicable to deposits of different thickness, inclination, and character. Coal mining; vein mining; working of thick deposits and soft-ore bodies. Salt mining. Surface workings. Required of third-year students in the courses of mining engineering and metallurgy.

IV. Ore dressing and the mechanical preparation of coal—four hours for three months, second term. Professor Munroe.

The general principles and theory of dressing; preliminary operations; hand dressing; cleansing; crushing; jigging with and without preliminary sizing; slime concentration, and description of typical dressing works and coal-washing plants in this country and abroad. Required of third-year students in the courses of mining engineering and metallurgy.

V. Ore-dressing laboratory—one afternoon for two months, second term. Professor Munroe.

During the second term of the fourth year a portion of the time assigned to ore testing is devoted to the mechanical assaying of ores and coal by hand jigging and vanning. Required of fourth-year students in the courses of mining engineering and metallurgy.

VI. Mine engineering—two hours first term and one hour second term. Professor Munroe.

Extraction; methods and machinery; handling mineral in working places; underground haulage. Surface handling and transportation; arrangements for loading and unloading cars and vessels, and for storing of minerals. Mineral railroads. Common roads. Drainage; sources of mine waters; methods for the control and raising of water; dams; drainage; levels. Water supply. Ventilation; air of mines; mine gases; methods of ventilation; control and measurement of air currents. Accidents to men in shafts, levels, and working places; fire-damp and dust explosions; mine fires; inundations; rescue and relief of men. Required of fourth-year students in the courses of mining engineering and metallurgy.

VII. Mine plant—three hours first term and two hours second term. Professor Peele.

Descriptions and critical discussion of the machinery employed in hoisting, drainage, and ventilation; air-compressing plant; types of plant best adapted to different conditions; erection and care of machinery; accidents, breakage, and repairs. Lectures are given also upon the design of timber, masonry, and iron construction, head frames, hoisting cages, ventilating fans, mine buildings, and other portions of mining plant. Required of fourth-year students in the courses of mining engineering and metallurgy.

VII (A). Mine constructions—four hours for one month, second term. Professor Peele.

Building stones; brick; limes; cements, and concretes. Foundations in various soils; masonry and timber construction, with special reference to mine work; mine buildings; trestles. Required of third-year students in the courses of mining engineering and metallurgy.

VIII. Design of mine plant—five afternoons first term and four afternoons second term. Professor Peele.

The students are assigned problems involving the design and construction of mine plant, in connection with the development of a mine. This work supplements the lectures on the design of mining machinery, involving reading and study, and the preparation of working drawings, bills of material, specifications, and estimates. The work is done under constant supervision and advice in the drafting room. Required of fourth-year students in the course of mining engineering.

IX. Mine surveying—one hour second term. Professor Munroe.

This course supplements the practical work in underground surveying in connection with the summer school in mining. It includes the general principles of underground surveying, the construction of mine maps and models of mine workings, the measurement of contracts, and the location of lines for new work. Required of fourth-year students in the courses of mining engineering and metallurgy.

X. Administration and mine accounts—one hour second term, fourth year. Professor Munroe.

Administration, organization, and business management, mine accounts, and cost sheets. Examination and valuation of mines. Required of fourth-year students in the courses of mining engineering and metallurgy.

XI. The Summer School of Practical Mining is held in June and July, at some mine or mines selected for the purpose, in the vacation between the third and fourth years, and lasts five weeks. Professor Peele and assistant in mining.

The course of instruction includes six weeks' detailed study of the plant and methods of working at some important mine or mines; practical mine surveying; excursions to other mines and mining regions, and geological work, surface and underground. The course of study includes the subjects of shaft sinking, drifting, stoping, timbering, underground haulage, hoisting, mine drainage, ventilation, surface plant and machinery, mine buildings, shops, houses, water supply, drainage, organization, and administration. The students are divided into small squads, and assigned each day to a foreman or working gang of miners for the study of some definite object.

Graduate courses: Special courses consisting of personal instruction, reading, and experimental investigation will be arranged for advanced students according to their individual needs. These courses vary in difficulty and in the amount of time necessary, according as the student is a candidate for the degree of A. M. or Ph. D., and according as he pursues mining as a major or a minor subject. The following are suggested: Coal mining, two hours; ore mining, two hours; coal washing, one hour; ore dressing, one hour; examination of a mineral property of a mine, four to six weeks devoted to field and underground work, with conferences at professor's convenience; examination of a coal-washing plant or an ore-dressing plant with four to six weeks in a mill or laboratory with conference, special problems, etc.

CHAPTER XXI.

THE TENNESSEE CENTENNIAL AND INTERNATIONAL EXPOSITION, HELD IN NASHVILLE, TENN., MAY 1 TO OCTOBER 31, 1897.

Report of J. C. BOYKIN, Agent of the Bureau of Education and Chief Special Agent of the Interior Department.

WASHINGTON, D. C., *February 1, 1898.*

SIR: The Exposition at Nashville was held to celebrate the one hundredth anniversary of the admission of Tennessee into the Union. Tennessee became the sixteenth State on June 1, 1796, and the actual completion of her centennial was marked by elaborate commemorative exercises and by the dedication of the Exposition grounds. The opening of the Exposition itself was deferred until the following May, because it was impossible to complete the preparations on the scale desired in the time that intervened since the beginning of active work.

It was during the fall of 1893, when the Columbian Exposition was exciting so much admiration and emulation, that the idea of holding its like in Tennessee was first effectively advanced. The newspapers of the State at once took up the suggestion and during the following year the matter was widely discussed. Though several meetings more or less informal in character had been held, the real beginning of the enterprise was in June, 1894, when a convention of business men met in the capitol at Nashville. A temporary organization was then effected, a legal corporation formed, and the canvass for funds begun. Seventy-five thousand dollars were soon raised by private subscription, and Davidson County, in which Nashville is situated, promised $50,000 more. The effort to secure an appropriation from the legislature however failed, and without the prestige of State support the plan seemed doomed.

But the matter had gone too far to die without a struggle, and a mass meeting was called and held in July, 1895, to discuss the situation. Unexpected interest was developed, and the ardor of the speakers and the enthusiasm of those present were such as to put at rest all doubts as to the advisability of continuing the efforts for the Exposition. Other meetings were held, and the corporation was reorganized with Maj. John W. Thomas as president, Mr. E. C. Lewis as director-general, and a board of directors consisting of 100 of the leading men of the State. Thenceforward the work went on with redoubled energy and effectiveness, and no other serious setback occurred.

The legislature finally granted the funds desired; several counties in the State made appropriations; the city of Nashville donated $100,000, and the Congress of the United States passed an act admitting foreign goods for the Exposition free of duty, and provided for a Government exhibit to be housed in a building of its own, and appropriated therefor the sum of $130,000. There was therefore no lack of prestige so far as governmental recognition could give it.

It is worthy of note that from the conception to the end the purely commercial features of the Exposition itself were reduced to a minimum. It was explicitly stated in the prospectus that "the plan of celebrating this great event is not

intended as a money-making scheme, but aims at the higher and nobler e marking with proper dignity and display the end of an eventful century a recalling and keeping alive the deeds and names recorded to its credit." Nor these empty words. They were justified by the behavior and spirit that ma the conduct of the responsible officers in all their actions.

The location for the Exposition was well chosen. A racing park 2 miles w the center of the city, containing about 200 acres, was selected, and proved adapted to the purpose in view. The ground was slightly rolling, and th there were no grades sufficiently sharp to unduly tire pedestrians, the irregu ties gave good vantage points for the erection of buildings intended to be espec conspicuous.

The corner stone of the first building was laid with appropriate ceremoni October, 1895, but the real work of construction was not begun until afte celebration of the actual centennial in June, 1896.

The two largest buildings were devoted respectively to Commerce and Agr ture, the names being taken from the seal of the State of Tennessee. The large buildings were the Transportation, the Machinery, the Negro, the Min and Forestry, and the Government building, the Auditorium, and finally, the of all, the Parthenon. In addition to these there were a great number of sm structures, the principal of which were the Woman's, Children's, History, cation and Hygiene, and Railroad Terminal buildings. The names of mo these indicate the character of the exhibits in them. The Commerce buil contained the miscellaneous exhibits that have usually been classed unde head of "manufactures and liberal arts;" the History building contained reli historical value; the Parthenon was devoted to fine arts, and the Railroad Te nal building was used by several railroad corporations to display the resourc the territory through which they respectively pass.

All the buildings were covered with the composition known as "staff," an glare of the sun reflected from the masses of pure white in every direction pr very trying to the eyes on bright summer days.

The buildings were of considerable architectural beauty, and the appearan the place as a whole was very pleasing. Foliage plants and flowers were us great profusion on the grounds, and cool arbors and miniature lakes added t beauty of the scene. Especial attention was paid to illumination at night, in addition to numbers of arc lights distributed over the grounds, incandes lights were arranged "in rows, clusters, and circles" on the roofs of the build and on the bridges. About 10,000 lights were thus employed, and striki effective decoration was the result.

The plan of arrangement of the buildings was particularly happy. Upon most conspicuous point in the grounds was erected a full-sized model of most famous of architectural master pieces the Parthenon, and around that center the other principal buildings were grouped.

If there had been nothing else to make it so, the Nashville Exposition w have been noteworthy for the presence of the reproduction of the Parthenon. its principal dimensions and general appearance it was in accord with the orig and it not only gave an unsurpassed object lesson in Grecian architecture of highest type, but it led to discussions of the details and history of the orig that proved to be of great educative value. Nearly all the advertising circu sent out contained more or less information about the Parthenon, and the F Arts Catalogue began with a sketch of it, covering several pages, by the archi of the reproduction, Mr. William C. Smith, of Nashville. Nevertheless it see to me that the full significance of the undertaking was not generally reali and that not sufficient stress was laid upon it, even by the management of Exposition.

When it is remembered that the Parthenon was the finest specimen of ar

tecture that the hand of man has ever erected; that its decorations were the choicest productions of the sculptor "in whose works were established for all time the laws of beauty and sublimity in art;" that for a hundred years it has been the favorite study of archæologists, architects, and artists, and that while it has furnished ideas and inspiration for buildings innumerable, no attempt had ever been made before to reproduce it entire, then the value of the suggestion of Director-General Lewis and the importance of its execution may be the better realized.

THE PARTHENON.

The ancient city of Athens was built around a rocky hill about 300 feet high, which, after the custom of the Greeks, was called the Acropolis. The strength of this height from a military standpoint undoubtedly influenced the location of the city, and the Acropolis was in reality a citadel. But it became the site for some of the principal temples of the city, and early in its history it was devoted so fully to such uses that its military usefulness became entirely obscured by its religious aspect.

During the Persian invasion the Greeks were compelled to abandon the city and to take refuge in their ships. After the final defeat of the Persians at Platea, 479 B. C., the Athenians returned to find their fortifications and temples in ashes and the city a scene of desolation. Their joy at their return and their gratitude to the gods for deliverance from the barbarian invasion were expressed in an eager desire to rebuild the city more glorious than ever and to consecrate new and more magnificent temples to the gods. The rulers encouraged the ardent patriotism and religious fervor of the people, and at the same time strove to increase the influence of Athens in affairs common to all the Greeks. The prestige of the city was already great because of the bravery of the Athenians in the Persian wars, and this prestige was increased by the sagacity of the Athenian leaders Themistocles, Cimon, and Pericles. The last-named attained a position of ruling influence in the affairs of Athens about 460 B. C., and the next thirty years, the "era of Pericles," marked the period of the highest development of Greek art and architecture.

The funds contributed by the Greeks for the common defense were in the control of the Athenians and were removed through the influence of Pericles from Delos to Athens. He had little difficulty in convincing his fellow-citizens that the Athenians were not answerable to their allies for the disposition of these funds so long as protection from foreign invaders was assured. An enormous revenue was thus at the disposal of the Athenian Government, and after providing and storing in the city a sufficient supply of all things necessary for war, the remainder was largely used in beautifying the city with public and sacred buildings.

As the victor in the contest with Poseidon, Athene had a peculiar interest and claim on the Athenians. The country was hers by the verdict of the gods on Olympus. Then the revenue, without which there could be no government, no country, was especially hers, and the national treasury was in a peculiar sense the possession of the goddess—her temple. As such it was worthy of the most lavish expenditure and the highest effort. The temper of the people was shown when Phidias was discussing the material for the statue of Athene to be placed in the Parthenon. He had suggested the use of marble as the most durable, and the Athenians listened in silence; but when he added that it was cheap they bade him hold his peace. The most expensive material possible was demanded, and the statue was made of ivory and gold.

To the Greeks there could be no good without beauty, and what was beautiful needed no other attribute to recommend it. Their devotion to beauty was the one characteristic to which all others were subordinated, and to render to their own

particular goddess a temple that was less than the embodiment of beauty have been to them the grossest sacrilege.

Phidias, the friend and favorite of Pericles, was made "surveyor-genera had supervision of all the public improvements inaugurated by Pericles. and Callicrates were the architects of the Parthenon, but the decoratio more or less designed by Phidias himself, and perhaps executed by his ow though the extent of the scheme made the employment of other artists ne for the less essential parts.

An older temple which stood on the Acropolis had been burned by the P during their occupancy of the city, and the foundations remaining were ex and utilized for the Parthenon. Carefully selected white marble from Pentelicus was used throughout, in the construction of the buildings pr well as for the sculptured figures.

The base of the structure was a marble platform, or stylobate, reached b steps on all sides. The stylobate was 100 by 225 Attic feet, an Attic foo about a hundredth longer than ours. Around its edge rose the architectur ports of the roof, 46 Doric columns about 35 feet high, 17 appearing on ea and 8 on each end. Inside this outer peristyle there were at each end 6 columns surmounted by a frieze which extended all round the cella or the the temple. In the external entablature on all four sides were metope mented with sculptures in high relief, between Doric triglyphs or raised chamfered on the sides and deeply channeled with two vertical grooves. T was low pitched, and in the triangular spaces at the ends, called the pedi were the sculptured groups, which were the most striking external feature Parthenon.

THE STATUE OF ATHENE PARTHENOS.

But it was in the interior that stood the greatest artistic glory of Athe statue of Athene Parthenos. On it was lavished a wealth of gold and iv skillfully wrought that all thought of the value of the material was lost templation of the beauty of the workmanship and the sublimity of the artis ception. The statue itself was 33 feet high, and stood on a basis which rai crest of the helmet to 40 feet. Many writers of antiquity refer to it at gre less length, and Pausanias thus describes it:

> This work of art is in ivory and gold. In the middle of her helmet is an of the Sphinx * * * and on each side of the helmet are griffins w These griffins, says Aristus the Proconnesian in his poems, fought wi Arimaspians beyond the Issedones for the gold of the soil which the guarded. And the Arimaspians were all one-eyed men from their birth, a griffins were beasts like lions, with wings and mouths like eagles. But the of Athene is full length, with a tunic reaching to her feet, and on her breas head of Medusa worked in ivory, and in one hand she has a Victory 4 cubit in the other a spear, and at her feet a shield, and near the spear a dragon, is perhaps Erichthonius. And on the base of the statue is a representation birth of Pandora, the first woman according to Hesiod and other poets, for her there was no race of women.

Pliny tells us also that "on her shield he (Phidias) wrought in relief the of the Amazons on the swelling circuit (i. e. the convex surface), on the c part of the same target (buckler) the combats of gods and giants, while sandals [he wrought] those of the Lapithæ and Centaurs, so completely make every spot (literally, all divisions) available for art."[1]

In one of the dialogues ascribed to Plato[2] it is said that the nude parts v ivory, the eyes partly of ivory and partly of stone, and the dress and wea gold.

The robe was easily removable, having been made so at the instance of P

[1] Pliny, N. H., XXXVI, 18. The translation here given is by Prof. B. L. Gildersleeve, o Hopkins University.

[2] Hippias Major.

and contained gold valued at forty talents, or about $470,000. Pericles suggested taking this gold for the purposes of the war when the Athenians were hard pressed by the Spartans,[1] but the suggestion was made, evidently, to allay the fears of the people by recounting the wealth at their command, rather than with any real intention of allowing it to be used. The removability of the golden robe served an unexpected purpose, according to Plutarch, when the enemies of Pericles sought to injure him by charging that his favorite, Phidias, had stolen some of the gold supposed to have been put in the statue. Pericles at once silenced the accusers by bidding them to take it off and weigh it. Nevertheless, Phidias was imprisoned later on a charge of sacrilege, it being alleged that he introduced his own portrait and that of Pericles among the figures in the reliefs on the shield of Athene.[2]

THE PARTHENON FRIEZE.

The frieze around the cella was 520 Attic feet long, and was ornamented with a great number of figures, presumably representing the Panathenaic procession. This procession was a feature of the festival held every four years in honor of Athene, the occasion being the presentation of a new peplos to the divinity. The figures of the frieze were cut in low relief and were cunningly contrived to avoid the disadvantages of their peculiar position in which all the light that reached them came from below. Great variety was introduced in the composition; there were youthful horsemen, some preparing for the start and others in motion, Athenian cavalrymen in full gallop, charioteers, warriors in armor, musicians, youths with jars and dishes, men leading sacrificial animals, maidens, marshals, magistrates, priests, and, lastly, two groups of divinities. Every degree of motion appears, from the calmly conversing magistrates to the rushing charioteers and horsemen, but so skillfully are the parts of the procession blended that at no point is there any lack of harmony. Another peculiarity of the frieze is that all the heads are on substantially the same line, notwithstanding the differences in posture and movement; but here again the skill of the artist in the arrangement of the figures avoids all appearance of monotony.

THE METOPES.

There were originally 92 of the metopes. Their height was uniform, about 4.4 feet; but their width varied considerably, the average being slightly over 4 feet. They show great differences in style and technique, and were not only the work of many different hands, but they seem to belong to different periods of art development. The supposition regarding them is that they were the first of the Parthenon sculptures to be completed, and that they actually mark the development of art during the building of the Parthenon. It is well known that in the time of Phidias, and under his influence, Grecian sculpture was finally released from the restraints of archaic stiffness and rose to the heights of freedom, beauty, and sublimity. And the Parthenon metopes are supposed to mark that transition.

The full meaning of these sculptures is not satisfactorily explained, and none of the suggestions concerning them has included a reasonable central idea which might run through them all and connect them in a single related series. It is conceded, however, that those on the southern side of the building represented the battles between the Centaurs and Lapiths. The Lapiths were, according to the legend, the ancestors of the Greeks, and Peirithous was their chief. When he married Hippodamia he invited the Centaurs to the wedding feast, and while it was in progress Eurytus, a drunken Centaur, carried off the bride and caused the fights commemorated in the metopes.

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[1] Thucydides, II, 13.

[2] Plutarch's life of Pericles.

The combats between the gods and the giants are supposed to have been sented in the eastern metopes, and the battles of the Amazons are belie many to have been the subject of those on the northern side. There is no factory clue to the meaning of those on the west.

THE EASTERN PEDIMENT.

The only reference in ancient literature to the groups of the pediments sentence from Pausanias: "And as regards the temple which they call th thenon, as you enter it everything portrayed on the gables relates to the b Athene, and behind is depicted the contest between Poseidon and Athene soil of Attica."[1] With this as a basis, endless speculations have arisen as significance of the different figures.

But little remains on which to base a judgment of the meaning of the group, but it is believed that the moment after the birth of the goddess wa for the representation and that the center of the pediment was occupied by Hephæstus, and the newly born Athene, and that the figures on the side of the minor deities. In one corner the sun god, Helios, is rising from t driving his famous horses, whose heads have just emerged from the water. to them is the superb nude figure of a man, commonly called Theseus, recli an easy attitude upon the skin of an animal. There follow two female f often referred to as Demeter and Persephone. They are seated, the arm resting familiarly upon the shoulder of the other. The next is the draped of a female, and is thought to be Iris, the messenger of the gods desc through the air to bear tidings of the wonderful event which has just taken

In the opposite angle Selene, the moon goddess, seems to be disappearin her horses into the ocean, and this, taken in connection with the appro Helios from the other side, is understood to symbolize the dawn of a new Attica upon the miraculous birth of her patron goddess. Near Selene ar female figures, two seated and the third reclining at full length with h resting upon the lap of the one in the center. These three are conceded to finest existing representations of the draped female figure, the drapery con nothing of the beauty of the superb forms beneath, but rather accentuati charm by its own gracefulness and freedom. The arms and heads of all t the figures are gone and we can form but an imperfect idea of their action. torsos other than those mentioned are preserved, one being that of a man st erect and the other of a draped female, evidently striding forward.

Nothing remains of the central, the most important personages of the what became of them, or when, is not known.

THE WESTERN PEDIMENT.

Of the western pediment even less remains than of the eastern. The shoulders, and back of Poseidon, the torso of a reclining river god, a h female figure leaning against a badly mutilated representation of a god, a a crouching male figure, another male torso, fragments of horses, and a fe cellaneous scraps, are all that is left of this series of statues. Fortunately ever, we know from extant drawings the position and attitude of nearly figures.

The story is that both Athene and Poseidon sought the possession of and it was agreed that the honor should fall to the one who produced th useful gift. Poseidon struck the rock with his trident and a salt spring forth. At the command of Athene an olive tree sprang up, and she imme received the award. The sculptor, according to the general acceptation, sents this contest before the assemblage of gods on Mount Olympus.

[1] Pausanias I, 2'.

The principal figures were those of Athene and Poseidon in the center, and as both seem to be preparing to leave the scene, the moment chosen for representation was evidently that immediately after the decision.

The head of Athene and the arms of both figures were missing when the drawings were made, and the action is therefore uncertain; but Athene seems to go in triumph to her chariot while Poseidon, full of anger, retreats toward his. Both chariots are awaiting their occupants, that of Athene being hitched to two rearing steeds and that of Poseidon being drawn by hippocamps, or monsters with horses' bodies and fishes' tails.

There were originally eight or nine attendant deities on each side, those on the side of Athene being usually recognized as Nike, the charioteer of the goddess; Hermes, who stands in the background behind the horses; Persephone and Demeter, seated with the boy Iacchus between them striving to get away from the scene of excitement; then Hebe and Heracles, and finally, in the angle, the river god Cephissus, who has been unexpectedly aroused and raises himself on his arm to look languidly toward the center.

On the side of Poseidon is a figure supposed to be Amphitrite, seated in her husband's chariot; next an indistinguishable figure in the background; Leucothea, with a child; then the nude Aphrodite seated on the knee of Thalassa, and attended by Eros; next is a nereid and the god Illissus, with the nymph Calirrhoe in the angle.

It is noticed that the figures in the angles are apparently oblivious to the drama enacted in the center, or take but little interest in it, while the action increases in intensity the nearer we approach to the main actors, and in them every muscle is tense with earnestness and excitement.

THE USE OF COLOR AND OF METAL.

Color was freely used in Doric temples, and the Parthenon and its decorations were no exceptions to the rule. Metal ornaments and accessories were used in connection with the statues, and many necessary parts not shown in the reliefs, especially of the frieze, were undoubtedly supplied with the brush. Athene Parthenos herself was adorned by the painter's art, and her golden robe is believed to have been toned down and shaded so as not to contrast too rudely with the nude parts.

The external architrave was probably left bare originally, but in later years shields and a metal inscription were placed upon it. The shields were probably those Alexander the Great sent to the Athenians after his defeat of the Persians at Granicus; and an American student, Mr. Eugene P. Andrews, recently distinguished himself by deciphering the inscription, which was of the time of Nero, by means of the position of the holes into which nails had been driven to fasten on the metal letters.[1]

ARCHITECTURAL REFINEMENTS.

In its architectural features there was much in the Parthenon that was not apparent to the casual observer, and much that escaped the attention of modern students until a comparatively recent date. The precision and beauty of the workmanship in even the minutest details and the excellence of the materials have long been observed. But unexpected refinements of architecture have been discovered from time to time, and the belief is justified that even now all the beauties have not been revealed. It was for a long time assumed, quite naturally, that the sides of the columns were straight lines, but since 1810 investigations have shown that they are bounded by delicate hyperbolic curves, not perceptible without close scrutiny, but which have been determined to amount to $\frac{1}{100}$ of the height of the columns.

[1] See Century Magazine for June, 1897, for Mr. Andrews's account of his feat.

The architrave, too, is curved to form a very flat arch, and the stylobate, larly, is curved upward. The pillars are not vertical, but incline towar center nearly a quarter of a foot, and the spaces between them are irregula nearly every instance the curves, where curves are apparent, were not a circles, but were conic sections, either hyperbolas or parabolas.

All these niceties evidently resulted from a keen appreciation of the effe optical illusion, but the precise reasons for some of them have not yet bee covered. Though the laws which governed these details be unknown to u nevertheless feel the effect of their absence in the stiffness and formality of ings erected in imitation of Greek temples, but without their subtle refinen It is likely that in much that they did, the designers were guided solely highly developed artistic instinct, and could not themselves have assig reason. The same acute perception of the requirements of special condition the same delicate ingenuity in meeting them, that prevailed throughout th struction of the Parthenon, are illustrated in the story of the statue of A which Phidias is said to have made in competition with Alcamenes. Wh rival statues were exhibited on the ground, that of Alcamenes was decidedl ferred by the Athenian public, but when they were elevated upon the hig umns for which they were intended, the work of Phidias was so plainly su to the other that Alcamenes became the laughing stock.

LATER HISTORY OF THE PARTHENON.

The Parthenon passed unscathed through the varied fortunes of the civil which distracted Greece, and retained its character as a sacred treasure until after the death of Alexander the Great in 323 B. C. In the dissension wars that followed that event Athens was a conspicuous sufferer. Her d erate citizens were the prey of first one conqueror and then another, and treated them all with servile adulation. Demetrius Poliorcetes was quarter the Athenians in the Parthenon itself, and the sacred temple became the of wild debauchery and licentiousness. He despoiled it of its treasure exce only the vessels and other articles distinctly sacred, but Lachares, who g the ascendency in the city when Demetrius had fled, well nigh complete work of spoliation. He thought only of enriching himself, and nothing w sacred for his rapacity. Pausanias states that he removed the shields fro temple, and even robbed the goddess of her golden robe. But he was oblig flee the city suddenly and was not able to take away his plunder; so Atl robe was restored and the statue was intact several centuries later at the ti the visit of Pausanias, which occurred about 170 A. D.

After the treasure had been removed the Parthenon lost much of its import but still remained the central point of the Panathenaic festival and the pla the distribution of the prizes for the contests. With the decline of that fe the prestige of the Parthenon was gone.

What finally became of Athene Parthenos is not definitely known. A remained under Macedonian influence from the time of Alexander to the con of Greece by the Romans in 146 B. C. Under the latter the city enjoyed perity; its temples not only remained undisturbed, but others were erecte great pains were taken to restore the city to its former splendor. It was after the spread of Christianity that the statue disappeared. After remaini all its glory for nine hundred years "with all the freshness of a modern wor all the beauty of an ancient one," it was removed from its place about the m of the fifth century. After that nothing remains to tell us of its fate. The rel of those Greeks who refused to accept the teachings of Christ in time degene into mere idol worship, and when Christianity gained the ascendency the athy for the pagan gods was in inverse ratio to the reverence in which the

formerly been held. The work of Phidias had especially invited adoration from its wonderful beauty and perfection, and it is natural to suppose that it was among the first to suffer when the Christians "threw down the false gods."

The Parthenon became a Christian church in the fifth century, and thereafter its character was changed according to the religions of the successive conquerors of Athens. Its first dedication as a Christian church was to St. Sophia, but later it was called the Church of the Mother of God, and retained that name as long as it was held by Christians. Many alterations were made in it from time to time to adapt it to its new uses, the principal of them being the construction of an apse at the eastern end of the building. This necessitated the removal of some of the slabs of the frieze, but they were carefully preserved and placed in a safe position inside. After the fall of Constantinople and the conquest of the Byzantine Empire by the Turks, the Parthenon once more changed its religion and this time became a Mohammedan mosque. Again minor changes were made to suit the caprices of the new occupants, and among them the Pentelic marble of the interior was white-washed! On the top was erected a slender minaret, from which the muezzin daily cried the Mohammedan call to prayer.

For over two hundred years after the fall of the Byzantine Empire Athens was seldom heard of by Christian Europe, and during the entire period of Turkish domination but two events occurred to entitle the city to a place in the annals of Christian nations. The Venetians attempted unsuccessfully to capture the city in 1464, and a similar and more successful effort was made by them in 1687. An army under Francesco Morosini had been sent by the Venetian senate into Greece after the defeat of the Turks by John Sobieski at Vienna, and had gained a number of important victories in Morea. Morosini, in September, 1687, sent a force, composed largely of mercenaries, under Königsmark, a Swede, to reduce Athens. He occupied the city, but the Turks remained in the Acropolis, which they strongly fortified. Königsmark planted his artillery advantageously, began the bombardment of the citadel, and soon had effected the ruin of the beautiful structures on its summit which had passed through the vicissitudes of two thousand years with undiminished glory. The Propylæa bore the brunt of the heaviest cannonading, the temple of Nike Apteros was entirely destroyed, and a bursting shell caused the explosion of a powder magazine in the Parthenon and completed the ruin which the steady artillery fire had begun. The explosion wrecked the center of the building irretrievably, but the pediments were only slightly injured. When he had gained possession of the Acropolis, Morosini, thinking to add to the glory of his campaign by sending home such choice art treasures, sought to remove the central group of figures from the western pediment; but his soldiers were more accustomed to handling artillery than statuary, and allowed the precious sculptures to fall, shattering them in a thousand pieces.

The Venetians held Athens but a short time, and when the Turks returned they saw in the mass of débris on the Acropolis only a source from which they might obtain building material, or a quarry from which they might get stones to burn into lime. The Parthenon bore no longer the semblance of a building which could serve as a mosque, the highest use which their civilization suggested; and so far as any appreciation of its sculptures was concerned, that was not to be expected from Musselmans, whose Koran forbids the fashioning of the likeness of any living thing. There was no motive left, therefore, to prevent the complete devastation of the remains of the Parthenon by the Turks of that period, so far as it suited their convenience and interest, and for the next hundred years and more there was a gradual disappearance of such sculptures as were left after that fatal bombardment of 1687.

From time to time, before and after that event, drawings had been made by visitors to Athens of different parts of the Parthenon, and it is to them that we are indebted for nearly all our knowledge of some of its features. The most impor-

tant of these drawings were made by Jacques Carrey, a French painter, who was employed by Marquis de Nointel, the French ambassador at Constantinople, in 1674. The structure was substantially intact at that time, and though but two weeks were granted him, the artist succeeded in drawing both the pediment groups, thirty-two of the metopes, and about three-fourths of the frieze. These drawings, twenty-one in number, are still preserved in the Bibliothèque Nationale in Paris.

The eastern pediment had lost its principal figures long before the time of Carrey, but when or by whom they were removed there is no evidence to show.

Turkish limekilns were not the only foes that wrought mischief to the Parthenon sculptures during the period of Turkish rule, for the relic hunter was as active then as he is now, and he had no difficulty in securing permission from the corrupt officials to remove legs, arms, or other parts of statues.

The French ambassador, Count Choiseul-Gouffier, and Fauvel, an artist in his employ, in 1797, removed entire a slab of the frieze and one of the metopes and sent them to France. Prompted by this, perhaps, the British ambassador, the Earl of Elgin, secured permission from the Turkish Government, a few years later, for his artists to make drawings and plaster casts and to take away pieces of stone with inscriptions. By suitable "presents" he induced the Turkish mayor at Athens to so construe this as to allow him to take away anything he chose. He employed 300 or 400 men a day in the work of removal. Everything bearing the slightest resemblance to a sculptured figure and every fragment that seemed to possess any value whatever was taken, whether it was found on the ground or still in its place on the building.[1]

The difficulties and annoyances encountered were many and great and the expense was enormous, but the British Government finally repaid Lord Elgin about $175,000 of his expenditure and the statuary was lodged in the British Museum, where it still remains under the name of the "Elgin Marbles."

Little remains now of the Parthenon on its own stylobate but the badly damaged columns at the ends and shattered portions of the entablature and pediments.

Such is the history of architecture's finest example. It has been described, studied, measured, discussed in all its details, enthusiastically and lovingly, through centuries ancient and modern. Learned conjecture has been brought to bear upon its lost features, and unmeasured admiration is ever expressed for what remains. Restorations and reproductions in great number have been made or suggested and models are to be found in every art gallery. At least one noteworthy attempt has been made to reproduce the color scheme, that of Chipiez, the French archæologist, who made the famous 12-foot model for the Metropolitan Museum in New York; but it remained for the Tennessee Centennial to be the first to build a full-sized model with colors, restorations of the sculptured ornaments, and all in approximate exactness of detail.

The Tennessee Parthenon.

It is not to be supposed that any claim was made of strict accuracy or that the structure was more than "a model," as its architect called it. The cella was built of brick, covered with "staff," the columns were of framework similarly treated, and the floor and stylobate were of wood. The structure was intended for temporary uses only, and necessarily cost was considered in all things. It was to save expense that the frieze was omitted, and a like consideration led to the use of the same group in both the pediments, and to the reproduction of only a few

[1] The figures called "Hebe" and "Heracles," in a badly decayed condition, and the lower part of "Calirrhoe" are still on the western pediment, and the horses' heads, in low relief, remain on the tympanum of the eastern. Several of the metopes also remain, but are so defaced as to be indistinguishable.

(thirty-three) metopes, which were repeated all round the building. This must be taken as an evidence of wisdom as well as economy. For if any attempt had been made to supply the missing figures in the eastern pediment or to design metopes to take the place of those that are lost or defaced the result would have been disastrous, for the work naturally would not have been the work of a Phidias. But Carrey's drawings made it possible to learn enough of the western group to reproduce it without jarring faults, and enough metopes still exist in fair preservation for their reproduction to give the entablature a satisfactory Phidian air if one were not so critical as to object to the repetition, which was not painfully conspicuous.

The General Educational Exhibit.

The scheme of classification of the Paris Exposition of 1900 gives the place of honor to education, and it is stated in the advance notices that especial attention will be given to the educational exhibits. These great expositions serve as models for the smaller ones that are held for years afterwards, and it is likely that the next century will see better treatment of education than it has had in the past. There has been no disposition to slight the claims of the educational material, for the authorities of the past expositions have been as liberal as it seemed to them wise to be. Nevertheless, agriculture, machinery, electricity, manufactures, and the fine arts have had precedence, and education has received what was left after the demands of these classes were satisfied. It is a matter of relative values, and the announcements from Paris indicate a new relative value to be placed on education. It is not to be valued as fourth or fifth in importance, but as first; and exhibitors of this class will have cause for rejoicing.

At Nashville there were educational displays in the Education and Hygiene building, the two galleries of the Commerce building, which were not connected, the Children's building, and the Negro building; and, lastly, the exhibit of the Bureau of Education, which had no connection with others of the same class, was in the Government building.

The galleries of Commerce were reached only by long flights of stairs, and the exhibits in them were greatly handicapped by their inaccessibility.

In the Children's building the ground floor was used as an audience hall, a kindergarten room, and for the display of curios. A great deal of kindergarten work was hung on the walls of the audience room. The floor above was occupied by some of the exhibits of elementary schools, and for the purpose it suffered from the same difficulty as the Commerce galleries, for visitors show an invincible objection to climbing stairs.

In the Education and Hygiene building the exhibits fared better. Nearly all the institutions of higher grade had their exhibits there, and being on the ground floor they had their just proportion of visitors. The same was true of the institutions for the colored race, whose displays were in the Negro building.

In mentioning individual exhibits, I would refer first to those of the University of Tennessee, Vanderbilt University, and the city schools of Nashville. All these were admirable in both the matter and the manner of display. The last-named exhibit was one of those that were in the Commerce building, but the other two were advantageously placed in the Education and Hygiene building. The University of Tennessee people are experienced exhibitors, and state that they have had excellent results from their work in this line. The exhibit was attended by a man who was selected for his special fitness in setting forth the facilities and advantages of the institution in a tactful and effective way.

The Peabody Normal School had a very creditable display; and several other institutions had their spaces attractively and tastefully furnished, apparently as resting places, where visitors might look at portraits of distinguished alumni or at albums of photographic views.

In the Negro building educational institutions were predominant, and th trial side of their work was most prominently shown. Among the most co ous exhibits were those of Fisk University, Lincoln University, Tuskege Normal and Industrial School, and the Industrial and Normal School mal, Ala.

The most successful feature of the educational department was the kinde conducted daily in the children's building. The teachers were fully aliv spirit of their work, and the kindergarten was a revelation to hundreds o in a section of the country where such methods of instruction are unfort too little known. Whether regarded as an exhibit pure and simple or a tional missionary work in a suitable field, the kindergarten was in eve admirable. It was in charge of a young lady who received her training public kindergartens of St. Louis.

No attempt was made to hold conventions and congresses under the aus the Exposition. A number of meetings were held in the Auditorium, Exposition authorities had little or no connection with them further tha nish the place of meeting. Those attending paid for their admission grounds as all other visitors did. The meetings were encouraged, of cou source of revenue, but their success or failure was not in any sense charg the Exposition itself.

The exercises on "Public School Art Day," May 7, were the nearest appr an educational convention that took place. Addresses were made by Dr Harris, United States Commissioner of Education; Miss Josephine C. Locke visor of drawing in the Chicago public schools; F. Hopkinson Smith, the and artist, and others.

THE EXHIBIT OF THE BUREAU OF EDUCATION.

Since statistics and educational information are the special province Bureau, the first thought and the most time were given to the prepar statistical charts. They are not the best exposition material, but they a representative of the Bureau's principal function. A large chart was m wall display which showed the progress of education in the South for twen past. The public school system in the Southern States has had its greatest in that time and the figures of the chart brought out the remarkable stri have been made. Eighty charts were prepared and displayed in "wing f about half of which were devoted to the statistics of education in the States and half to education in foreign countries. There were among these charts that were comparative in character, and showed for several count relative number of male and of female teachers, the relative number of elen pupils, relative illiteracy, etc.

Allied to the charts in general character were eight large maps of the States, upon which were shown the location of the higher educational insti the distribution of public school and high school attendance, and of publi ries, and the percentage of illiteracy in the several States of the Union. maps were very valuable, and were constantly examined by interested visi

Twelve cases of photographs were shown in which were views of typical tional institutions classified as follows: Public schools, normal schools, sem for girls, academies for boys, institutions for the colored race, colleges for universities and colleges, agricultural and mechanical colleges, institutes nology, and schools of medicine. In each case the institutions represent selected to cover as wide a field as possible, and there were pictures fro State in the Union. Comparatively few photographs were included from ville and the vicinity, on the supposition that the schools in the neigh would all have exhibits of their own, and that Tennessee material in ou

would be of little interest. This proved to be an error. The few Tennessee photographs in the collection were more popular than all the rest together, and a great many visitors expressed disappointment at not seeing more of their home institutions represented. People in looking through the cases would almost invariably hunt for scenes with which they were familiar. I am led to believe, therefore, that a liberal display of the pictures of local institutions would add to the interest of such a collection, and by inducing people to "proceed from the known to the unknown" would make the whole of greater use and value.

A number of water-color pictures were made to indicate the progress of school architecture. They showed respectively a primitive log-cabin schoolhouse, an interior of the same, a "dugout" school of the Western plains, the "little red schoolhouse" so familiar in educational literature, a city school building of thirty years ago, and lastly a typical modern building. These pictures, with the exception of the last named, were made, and well made, by Mr. Spencer B. Nicholls, a young artist of this city. Mr. Edward W. Donn, of the firm of Donn & Peter, architects, originated the design and drew the picture of the present day structure. The most apparent and conspicuous improvement that relates to schools has been in the matter of equipment. Comparatively few years have elapsed since the prevailing type of schoolhouse in this country was of very primitive character. The rural aspect of the country as a whole and the undeveloped condition of the school system operated to associate the school in the popular mind most intimately with the log cabin or the simple one-room frame structure. It is unnecessary to say that this is no longer true. Typical American life of to-day is life in cities and villages, and the representative schoolhouse is the commodious 8-room building so frequently seen the country over. This evolution was very well shown by the pictures exhibited, and they attracted wide attention.

The twenty historical pictures of school punishments which were made for the Bureau exhibit at the Atlanta Exposition by Mr. Felix E. Mahony were again displayed, and were again an attractive and popular feature.

That part of the exhibit which related to Alaska was during a considerable part of the summer one of the most sought-for exhibits on the grounds. The excitement caused by the discovery of gold on the Yukon River was attended by a widespread desire to learn as much as possible of that little-known territory, and made everything connected with Alaska an object of interest. The Bureau's exhibit was prepared before the gold discoveries were made, and for that reason had but little to show from the vicinity of the "diggings." But at my request Mr. William Hamilton, the assistant general agent of education, kindly indicated on a map the points around which the most of interest is centered, and wrote a letter describing the region, the mode of reaching it, etc. Both the map and the letter were framed and hung in a conspicuous place, and were nearly always surrounded by eager visitors, since that information was not then readily accessible elsewhere.

Nearly all the material in the Alaska exhibit was furnished by Dr. Sheldon Jackson, the general agent of education, and by Mr. Hamilton. It comprised two show cases filled with curios, eighty sheets of statistics, photographs, drawings, etc., showing as far as possible the conditions of education in the Territory, and a collection of water-color paintings of Alaskan wild flowers made by Miss E. Leslie Jackson. The curios included totem poles, models of fur garments, specimens of carving, weaving, and needlework, and the like. The native drawings were remarkable for the conception of perspective they displayed, and for an accuracy of execution that was surprising in those whose instruction had been of the most limited and the rudest sort. But few of the "artists" had attended the Government schools at all.

The flower pictures of Miss Jackson were noteworthy for their artistic excellence as well as for their botanical correctness, and were much admired. To most

visitors the most surprising part of it was that there were such flowers in A at all, and the exhibit did much to dispel the prevalent idea that Alaska is of perpetual snow and ice.

In the matter of installation the changes introduced were more in the nat improvements over old ideas than of radical innovations. The photogra typical educational institutions were mounted on heavy cards and hung in l frames in neat cabinets. Since wall space was limited, these cabinets were structed upon tables, six upon each, and the result was two very handsome of furniture.

Between the space assigned to this Bureau and that of the Indian Offi screens were erected, one on each side, with a sufficient space for passage be The screens were 10 feet long and 8 feet high, and were substantial and mental. The frames were of polished oak, to correspond with the rest of t niture, and the central portions were covered with burlap similar to th covering. They served excellently for additional hanging space for picture

Wing frames, hung in rows above 8-foot tables, were used for the stat charts and for the Alaska photographs; and the maps showing distribut educational institutions were hung upon self-acting rollers, in wall cases s structed as to permit the ready examination of any map in either case.

The show cases used for the Alaska curios were like those commonly s stores, save that they were of glass on all sides. The frames were perfectly though of highly polished oak. The handsome appearance of the furnitu the great number of pictures on the walls made attempts at ornamentation own sake unnecessary. Four groups of Rogers' statuettes of school subjec a large brass telescope were, however, used to good advantage on the tops cases.

I have appended a catalogue of the exhibits in the Government building matter worthy of wider and more careful attention than they could receive exhibit, a number of the statistical charts mentioned in the foregoing parag

I am, sir, very respectfully,

J. C. BOYKIN, *Special A*

Hon. W. T. HARRIS,
Commissioner of Education.

DESCRIPTION OF THE UNITED STATES GOVERNMENT EXHIBIT.[1]

The Congress of the United States, by act approved December 22, 1896, pr for a representation at the Tennessee Centennial Exposition by the Governm the United States from its executive departments, the Smithsonian Insti and Fish Commission of "such articles and materials as illustrate the fu and administrative faculty of the Government in time of peace and its res as a war power, tending to demonstrate the nature of our institutions an adaptation to the wants of the people." To secure a complete and harm arrangement of the exhibit, the act provided for a board of management composed of a representative designated by the head of each department following representatives were respectively appointed: E. I. Renick, Depa of State; C. E. Kemper, Treasury Department; Capt. H. C. Ward, U. S. A Department; Lieut. C. M. McCormick, U. S. N., Navy Department; J. B. F low, Post-Office Department; F. W. Clarke, Department of the Interior; Strong, Department of Justice; C. W. Dabney, jr., Department of Agric F. W. True, Smithsonian Institution and United States National Museu de C. Ravenel, United States Fish Commission.

Dr. Charles W. Dabney, jr., president of the University of Tennessee and ant Secretary of Agriculture, was appointed by President Cleveland as cha of the board. The organization was completed by the selection of W. V. C the National Museum, as secretary, and H. P. R. Holt, of the Treasury D ment, as disbursing officer.

[1] Based upon the description prepared by the representatives of the several departme presented to the president of the Exposition by Mr. W. V. Cox, secretary of the Gove board of management, on the day of opening.

THE EXECUTIVE MANSION.

This exhibit is small and for convenience is made part of the exhibit of the Department of State. It contains a portrait of the President and Vice-President, steel engravings of all the Presidents of the United States conveniently arranged, and a photograph of the Executive Mansion. The official working of the President's office is shown by a blank form of nomination to the Senate, commissions issued for different offices, samples of stationery, the official seal, a warrant directing the Secretary of State to place the seal of the United States upon an executive instrument, and forms of letters used.

THE DEPARTMENT OF STATE.

The historical archives of this Department contain many rare collections of papers and letters written by men connected with the foundation of the Government. There is on exhibition one volume of the Washington Papers containing manuscript letters of George Washington, including that of December 29, 1783, resigning his commission as General of the Army. This collection comprises 313 volumes. There is one volume from each of the following collections: The Madison Papers, in 75 volumes; the Jefferson Papers, in 131 volumes; the Hamilton Papers, in 65 volumes; the Monroe Papers, in 22 volumes, and the Franklin Papers, in 34 volumes. These valuable documents have all been purchased by the Government. All of them have been carefully restored, mounted on sheets, indexed, and bound in volumes, except the Washington and Hamilton Papers, and the work on these is progressing. The Department has in its custody the original Declaration of Independence, but this precious document is so faded that it is necessary to protect it from the light. A facsimile is exhibited, with 38 portraits of the signers. Accompanying these is an artotype copy of the original rough draft, containing the interlineations and corrections by Adams and Franklin. An artotype reproduction of the original Constitution of the United States, with 36 portraits of the signers, makes an interesting exhibit. These artotype reproductions are so like the originals that they are considered equally good for exhibition.

There is a fine collection of autograph letters from foreign officials and celebrities to the President of the United States, among them being Robespierre, Barere, Carnot, Louis, King of France, Napoleon I, Jerome Bonaparte, Queen Victoria, Alexander I, of Russia; William I, Emperor of Germany; President Diaz, of Mexico; Ranavalmonicao, Queen of Madagascar; Chulalongkorn, King of Siam. The autographs of the Presidents are shown in original proclamations on various subjects, the only signature lacking being that of President William Henry Harrison, who died before signing a proclamation. There is a set of portraits of the Secretaries of State; maps showing the growth of the United States diplomatic and consular service; maps showing the expansion of the territory of the United States under treaty provisions; Andrew Jackson's sword; swords presented to the United States by Japan and Siam; Malay krises captured from pirates; a large gold medal set with diamonds, containing a fine cameo with a representation of Columbus discovering America, designed and presented to the President of the United States by the Sultan of Turkey in commemoration of the four hundredth anniversary of the discovery of America; a statuette of George Washington by Baron Marchetti from the original study and model by his master, Houdon, of Paris, in 1785–1790, for an equestrian statue, which, according to Thomas Jefferson, then United States minister to France, was sent to America by Houdon with the expectation of receiving an order from the Congress of the United States to have it cast in bronze, but the model was destroyed by fire in Washington, leaving this statuette as the only survival. It was in the possession of the Duke of York, and at the time of the Chicago Exposition he presented it to the United States and it was placed in the custody of this Department.

The workings of the various bureaus of the Department are carefully outlined, particularly in the passport division, which is of great interest to those contemplating a trip abroad. It shows the forms of passports used by the Department, the forms of application for a passport, those to be used by a native citizen, by a naturalized citizen, and by persons claiming citizenship through the naturalization of their husband or parent; instructions governing the issuance of passports, and a pamphlet (for free distribution) showing the passport regulations of foreign countries.

THE TREASURY DEPARTMENT.

The administrative functions of the Treasury Department may be divided into three branches—the accounting, the financial, and the commercial. The first of these consists of examining and revising every expenditure of the Government,

and no money appropriated by Congress for the maintenance of the Genera ernment or any of its branches can be legally expended except upon the ap of the Secretary of the Treasury. This branch of the Department, being clerical, can not be illustrated by an exhibit.

The financial branch of the Department is illustrated by a complete set of currency issued by the Government, from a 10-cent shinplaster to a $10,000 gol The process of coining the money of the Government is shown by operating press, which has been in constant use in the Philadelphia Mint for fifty-two It has a capacity of $90,000 per hour, and in coining a silver dollar strikes equal to the weight of 100 tons. A medal specially prepared for the Exp will be coined during the period of the Centennial. In connection with th exhibit is also shown a complete set of the current coins of 70 of the pal nations of the world, and a full set of all the national medals authori Congress.

The Bureau of Engraving and Printing, in addition to showing all the money of the United States, will exhibit a plate printing press in operation trating the manner in which United States notes are printed, and upon will be printed a souvenir card of the Exposition, showing the White Hou Capitol at Washington and portraits of the President and Vice-President.

The commercial branch of the Department has control of all matters pe ing to the collection of revenue, and, by analogy, Congress has assigned Secretary of the Treasury the duty of enforcing all laws relating to domest foreign commerce of the United States, including the Light-House Establish the Life-Saving Service, the Marine-Hospital Service, the Coast and Ge Survey, and similar branches of Government business.

The Light-House Establishment exhibits a more complete assortment of apparatus and furnishings than ever before shown, consisting, in part, of on second-order bivalve lens, weighing over 8 tons, one third-order lens, flashi and white lights alternately, and one fourth-order lens, all of which are sh operation, together with all the lighting appliances in use by the Departm

The Marine-Hospital Service's exhibit will be illustrative of the functions Government in preventing the introduction and spread of epidemic diseases establishment of quarantine stations, where all vessels and passengers are ined by trained surgeons, and by the erection of Government hospitals f care and treatment of American and foreign seamen. The exhibit cons models and photographs of quarantine stations and hospitals, hospital furni and fittings, disinfecting apparatus and surgical instruments.

The Treasury Department, through the medium of the Coast and Geodeti vey, is the custodian of the standard weights and measures of the United S and, under the authority of Congress, supplies each State with a set of sta weights and measures, from which all others are made and tested, and thes be exhibited by the Survey, accompanied by models of the metric system.

The Supervising Architect of the Treasury has control of the design and tion of all public buildings, and the exhibit of his office consists of water photographs, and sketch plans of the most important buildings erected Government.

THE WAR DEPARTMENT.

The War Department exhibit represents four branches of the Army, vi Quartermaster's, Engineer's, Ordnance, and Signal Corps departments.

Quartermaster's Department.—This department exhibits lay figures, mo and dismounted, showing the uniforms of officers and men from 1776 to th ent date, and that of a Puritan soldier of 1620; also a case of chevrons, rep ing the various insignia of rank of the enlisted branch; two pack mules, sh old and new methods of packing used by troops on a campaign in the far against Indians, and where wagon transportation is not available or practi silken colors of regiments, battalions, army corps, divisions, and brigades, silken guidon of the Seventh Cavalry, of Custer fame.

Engineer's Department.—This department exhibits models of Harlem improvement, St. Marys Falls Canal lock, pontoon bridge apparatus, mort tery at Hell Gate, block house and lift-gun battery; a number of photogra series of sixteen transparencies, and a submarine-mine group, showing ho harbors and rivers are protected.

Ordnance Department.—This department displays a light-battery field gu carriage and limber complete; Gatling gun, with carriage and limber co field mortar and carriage; gun rack, with large collection of ancient and m guns and revolvers, including those now in use in the Army; samples of t ferent swords, sabers, and scabbards used in the Army; cavalry and infantry

complete equipments; armor-piercing shot for 8, 10, and 12 inch rifles; shells for 7-inch howitzer and 5-inch siege gun; sample boards of fuses and ammunition, both reloading and nonreloading.

Signal Corps.—This exhibit includes the various apparatus used for day and night signaling; photographs of arctic scenes; the famous relics of the Greely relief expedition—the medicine chest, the seal-skin boots boiled up to make their last meal, the improvised scales used to weigh rations, the hatchet and piece of flag carried by Lockwood and Brainerd to the farthest north, the oar with its distress signal, a sledge made from pieces of boards used by Rice and Frederick in an unsuccessful attempt to cross to Baird Inlet to obtain the beef which had been cached there. Rice died on this sledge during this trip and was buried in the snow.

THE NAVY DEPARTMENT.

The exhibit of the United States Navy Department is assembled especially to show the present status of the Navy. Nothing is exhibited on account of its historical value only. The few old articles exhibited are only intended to accentuate the modern implements of naval warfare. It is endeavored to give this exhibit the greatest intellectual value, and to do this prominence has been given to the Bureaus of Construction, Equipment, Ordnance, and Steam Engineering, while other bureaus have received little or no attention.

In the middle of the rotunda is a full-sized model of the military mast of the gunboat *Helena* (a miniature of this vessel being included in the fleet of models). This mast carries two military tops, in each of which are mounted two 1-pound rapid-firing guns. On the platform, between the tops, a 30,000-candlepower search light is mounted. The bronze ship's bell, mounted near the base of the mast, was made for the U. S. S. *Canandaigua*. Service and international signal flags are flown from the masthead.

Leaving the mast, the first exhibit in the Navy Department space is a full-sized model of a battle ship's anchor, weight 14,000 pounds, attached to which is a short section of 2¼-inch chain cable, with club link and shackle. At the crown of the anchor will be placed a model of the U. S. gunboat *Nashville*, made especially for this Exposition. This vessel heads the fleet of ship models, in which will be found one or more vessels of each of the various types of battle ships, monitors, cruisers, and gunboats, with a concise description of each. The lines of these models are made with extreme accuracy, and the models themselves show the perfection of the mechanic's art.

Following the ship models will be found a Howell and a Whitehead torpedo, and a main-deck torpedo gun, used in firing Whitehead torpedoes. Adjacent to the torpedo gun is a full-sized half-section model of a 13-inch rifle, showing, in the section, how the tubes, jacket, and hoops are locked. On line with the bore of the gun, and extending to the end of the allotted space, is a rough painting, illustrating the penetration of a 13-inch projectile fired with an initial velocity of 2,400 feet per second, at a target consisting of steel, wood, granite, and brick. Alongside this model are shells of all calibers, from 13 inches down, a number of which have been fired against armor and show more or less distortion. Model powder charges for 13-inch and 6-inch guns, with their cases, are here displayed. Attention is called to a sample of one of the return springs for the 13-inch gun, with its specifications. A breech block for a 10-inch gun is mounted near breech of 13-inch gun.

Following the line of the exhibit is found a 5-inch rapid-fire rifle, a Hotchkiss, and a Driggs-Schroeder 6-pounder, a Hotchkiss 1-pounder, a Hotchkiss revolving cannon, and a 3-inch field gun on its carriage, all with their ammunition and drill cartridges. A few pieces of old cannon, possessing historical value, serve to show the contrast and development of modern ordnance.

A nickel model of the Hichborn turret divides the heavier ordnance from machine guns and small arms. The latter consist of a Gatling gun and its successor, the Colt automatic gun, the latest and most approved adaptation of the Navy. This gun fires the same cartridges (caliber 6 millimeters, or about 0.236 inch) as the new Navy rifle, one of which is mounted on a tripod, from which sections of boiler plates, showing penetration and efficiency, are suspended. A case near by contains three of these rifles, which show sections, through the breech mechanism, at different positions of firing.

In front of this case is displayed a Franklin life buoy suspended from a section of a ship's side. Immediately in rear of this is shown a plaster development of the Caribbean Sea, and the engraved plate from which charts of this sea are printed, together with a portfolio of charts, illustrating the chart work of the Hydrographic Office. On the wall are displayed pilot, current, storm, and other charts.

Various instruments of navigation, samples of primers, fuses, pressure
and of the various powders used in the service, and other small articles ar
ited in a show case near by, and alongside this stands the latest type of c
sating binnacle compass complete.

Following these are seen a propeller blade of the U. S. S. *Maine*, a se
crank shaft of the same vessel, and a steam-launch engine and its propel
large drawing of the engines of the U. S. S. *New York* is suspended on the

In a wall case are shown samples of the various kinds of rope made in the
States rope-walk, at the Boston Navy-Yard.

A diving suit, with complete equipment of air pump, piping, telephor
stands prominently against the rear wall of this exhibit.

On the side wall will be found four cabinets containing a large number
tographs illustrating various subjects connected with the naval service
on board ship.

Attention is called to the drawing in the center of this wall, illustrat
relative strength of the different naval powers of the world. On each side
are numbers of paintings, drawings, engravings, and numerous large phot
illustrative of naval vessels and scenes, the painting of the *Nashville* havi
made especially for the Exposition.

Besides what is shown in the Government building, the Navy Departm
has a medical exhibit in the building of Hygiene and Education, which co
most of the hygienic implements used in the naval service, besides models
interest.

THE POST-OFFICE DEPARTMENT.

Stamp division.—The following collections are displayed: A series of
States postage stamps from their introduction in 1847, including Depa
special-delivery, postage-due, and newspaper and periodical stamps; also
stamped envelopes from 1853 to 1893, and sets of foreign stamps and post
to 1893 from all stamp-issuing countries of the world.

Equipment division.—This branch of the service is represented by mo
uniformed mail carriers of the United States and other countries, fully e
with the insignia of the service of their respective Governments; a figur
Indian mail carrier, with toboggan drawn by three dogs hitched tandem,
of the service as it now exists in the region between Sault Ste. Marie and
inaw, Mich.; a model of a United States postal car completely furnished;
of the German mail coach; a collection of United States mail bags, and
in use in this and other countries; a collection of postmarking stamps an
of the United States, dating from the year 1800.

Dead-Letter Office.—Collections of articles sent through the mails and for
to the Dead-Letter Office because misdirected or prohibited by postal la
this exhibit are included explosive bombs, deadly weapons, tarantulas and
snakes sent alive, and poisonous liquids and compounds. Other articles
ters written on collars, cuffs, and boards; children's toys, Indian scalps,
police billy, mail bag captured by Indians and smeared with the blood
murdered carrier. This collection contains a handkerchief taken from th
body of the United States postal clerk of the steamship *Oregon*, lost at
recovered one hundred and fourteen days afterwards, with other articles fr
mail of the ship. There is also a lock of the hair of Guiteau, the assassin
ident Garfield, sent through the mail by him while on trial.

Portraits.—This collection comprises an engraving of Benjamin Frank
first Postmaster-General of the American Colonies; portraits of the four P
ters-General from Tennessee, viz: Cave Johnson, under President Polk; A
Brown, under President Buchanan; David M. Key, and Horace Maynard
President Hayes; and a crayon of James A. Gary, present Postmaster-Gen

Postal records and letters, old and new.—These include the post-office le
Benjamin Franklin; the report of the committee of United States Senate J
20, 1829, on the transportation of the mails on Sunday; a postal card whic
eled around the world in one hundred and twenty days; history of the trav
registered letter in this and foreign countries; a religious book printed
obtained through the dead-letter office; statistics (framed) of the postal ser
the United States from 1775 to 1896, and a comparison of magnitude of the
service of the United States with France, Germany, and Great Britain.

As a part of the exhibit of this department, the post-office of the Centenni
has been established in the Government building.

THE DEPARTMENT OF THE INTERIOR.

This Department is represented by only four of its bureaus—Bureau of
tion, Bureau of Indian Affairs, the Patent Office, and United States Ge

Survey. These fill a floor space of about 4,000 square feet, and make an exhibit indicating the principal features of their work.

Bureau of Education.—[See report of the special agent.]

Bureau of Indian Affairs.—This Bureau attempts only to show its work in the Indian schools. Three large showcases, built by Indian pupils at the Indian school, Carlisle, Pa., contain articles of handicraft, such as carpenter and blacksmith work, shoemaking and tinware, embroidery, dresses, beadwork, etc. A large, three-seated wagon and several sets of harness are included in the display.

Patent Office.—This exhibit occupies the center of the square, and, as usual, exhibits models of American inventions. The models occupy ten large cases and are classified in groups, each showing the influence of the Patent Office in the development of some particular class of industry. Thus we find agricultural machinery, metal-working tools, typewriters, textile machines, woodworking machines, guns, measuring instruments, and machines for working clay, for excavating, for paper manufacture, etc., and a case of chemicals and dyestuffs derived from coal tar.

United States Geological Survey.—The Survey exhibits minerals, fossils in rocks, in considerable variety, with a series of sixteen relief maps and geological models. A wall 12 feet high and 48 feet long is covered with a display of geologic and topographic maps, and other wall space is used to display framed illustrations from publications of the Bureau. In four windows 32 large photographic transparencies are displayed, which not only illustrate American scenery, but also decorate the space assigned to this Department. Each transparency measures 36 by 28 inches.

THE DEPARTMENT OF JUSTICE.

The exhibit of the Department of Justice contains portraits of the eminent jurists who have been Attorneys-General. The photographs of the late Attorney-General Harmon and the present Attorney-General McKenna, as well as the associate justice and the circuit district judges of the sixth judicial circuit (to which circuit Tennessee is attached) are also shown, as well as a picture of the Supreme Court room at Washington.

The exhibit contains some of the publications issued by the Department and volumes of ancient law, interesting alike to the lawyer and student. It contains photographs of penal institutions throughout the country wherein are confined convicts sentenced by courts of the United States. Two cases are filled with articles made by inmates while undergoing imprisonment, such as embroidery, napkin rings, wax flowers, etc., and a teakettle made from a 10-cent piece.

Cases of blanks and forms illustrate the manner in which the business of the Department is transacted.

DEPARTMENT OF AGRICULTURE.

Weather Bureau.—The exhibit of this Bureau comprises a collection of instruments and apparatus for determining the velocity and recording the direction of the wind and clouds, various forms of barometers and apparatus illustrating their principles, rain and snow gauges, sunshine recorders, thermometers, etc.; a series of climatic charts, etc., containing specially prepared maps of miscellaneous meteorological data, large relief map showing the annual mean rainfall of the United States, etc.; framed photographs of Weather Bureau offices and special views, instruments, clouds, and lightning; samples of kites used in aerial investigations, with models of various forms, showing development, etc.

Bureau of Animal Industry.—This display consists of models and specimens in alcohol representing some of the infectious diseases in the domesticated animals, models of diseased horses' hoofs, shoes for the correction of faulty gaits, and the treatment of the diseases of the hoofs; tags, implements, etc., used in the United States meat inspection service; cultures of bacteria, toxins and antitoxins, animal parasites; a pyramid of wood samples from the Southern States; poultry, illustrating the gapeworm disease; photographs of famous horses and cows.

Biological Survey.—This section exhibits a number of characteristic Southern birds (mainly aquatic species) which have suffered most from the attacks of feather hunters, who kill the parents and leave the helpless young to die; various groups of birds that are beneficial by destroying insects or small animals; groups of animals mounted upon characteristic bases, among which are prairie dogs at the entrance of their burrows, ground squirrels from the prairie region of the Mississippi Valley, pouched gophers, etc.

Division of Entomology.—The most interesting features of this display are collections of insects affecting fruit trees, truck crops, forage plants, grains, live stock, etc., together with models in wax illustrating the injury caused by them;

a wax model of the cotton plant and models illustrating injury caused by the cotton worm, and the bollworm, with a number of the more important insecticides, with brief directions for their preparation and application; bromide enlargements of figures and photographs illustrating various important insects and field operations in the control of insects.

Division of Forestry.—The exhibit of this division comprises a monographic display of four commercially important timber trees of the South—longleaf pine, red cedar, white oak, and red gum; each species shown in a rustic monster frame formed of the timber of the species with bark on it, containing a map of geographical distribution, synonym and economic uses, photomicrophs (showing magnified structure of wood), botanical specimens, together with cross sections of young and old trunks and unfinished and finished wood showing characteristic appearance; representative forest botanical display of 140 Southern tree species mounted in glass boxes, each box specimen accompanied by a block of wood and a small map showing geographical distribution; three models of a farm showing (*a*) the destructive erosion consequent upon indiscriminate forest denudation; (*b*) the method of reclaiming the farm; (*c*) the model farm as reclaimed.

Division of Pomology.—Here are shown, among other things, models and water-color paintings of fruits adapted to cultivation in Tennessee and other Southern States; a collection of fruit descriptions illustrating methods used in recording varietal characteristics, for use in identification of varieties; living pineapple plant from Florida showing fruit in successive stages of development, and photographic enlargements illustrating methods of culture and marketing the same.

Division of Vegetable Physiology and Pathology.—This exhibit consists of collections of models, specimens, and photographs illustrating the habits of the different genera and species of edible and poisonous mushrooms and their cultivation. An interesting case contains models, photographs, specimens, and paintings, illustrating the characteristics of some of the more common plant diseases and the methods of laboratory and field work followed in the investigation of these diseases; also groups of bromide enlargements and maps showing field work in treating plant diseases and its results, and illustrating the distribution in the United States of the more common plant diseases.

Division of Agrostology.—This exhibit contains sixty sheaves of American grasses, chiefly Southern; eighty-four drawings of North American grasses, being originals of the illustrations for the "Handbook of North American Grasses," now in preparation, and two transparencies of grasses grown in Tennessee.

Office of Fiber Investigations.—This exhibit shows the commercial fibers of the United States, cultivated and imported. These are arranged in four cases of thirty-two panels, in series, to illustrate the raw fibers and their preparation, with examples of principal manufactures. The collections comprise flax, hemp, jute, cotton, ramie, sisal and manila hemps, Tampico, palmetto, cocoanut, and the principal species of brush fibers, such as piassava, palmyra, kittool, etc. Among fibrous substances are bamboo, rattan, straw plant, ramie, Southern cane fiber, silk cottons, and woody fibers. Among novelties are corn-pith cellulose, used for packing bulkheads of armored vessels, Cuba bast and willow and poplar shavings, used in millinary goods.

An interesting feature of the exhibit of the Department of Agriculture is a relief model of the State of Tennessee, treating of its topography and agricultural resources.

THE SMITHSONIAN INSTITUTION.

The exhibit of the Smithsonian Institution includes also the Bureau of American Ethnology, the National Zoological Park, the Bureau of International Exchanges, the Astro-Physical Observatory, and the United States National Museum. It is intended to convey a clear impression of the character and scope of the work accomplished by the institution and the bureaus under its direction.

A complete set of its publications, including those of the Bureau of Ethnology and National Museum, forms one of the principal features of this exhibit. There are portraits of James Smithson, the founder of the institution; three secretaries, Joseph Henry, Spencer Fullerton Baird, Samuel Pierpont Langley, and the late George Brown Goode, assistant secretary, so well and favorably known as a scientist and for his exposition work.

The Bureau of American Ethnology.—This exhibit consists of one-half of a Kiowa camping circle, with the associated shields and other objects, and is extremely interesting on account of the fact that this aboriginal tribe is now the only representative of a distinct stock of North American Indians.

The National Zoological Park.—This park is represented by a large model showing buildings, roadways, bridges, etc., while in the windows above are enlarged

photographic transparencies of objects of greatest interest in the park, including buffalo and other animals.

The Bureau of International Exchanges.—This Bureau is represented by a complete set of the publications of the United States Government for one year. Fifty similar sets are distributed annually by the Bureau to foreign countries. Numerous maps and diagrams, illustrating the workings of this Bureau, are also shown.

The Astro-Physical Observatory.—This exhibit consists of photographs of the exterior and interior of the building at Washington and of the principal instruments therein—siderostat, galvanometer, spectrometer, a bolometer or electric thermometer, the invention of Professor Langley, and large photographs of portions of the solar spectrum.

UNITED STATES NATIONAL MUSEUM.

The exhibit of the National Museum is larger than those of all other dependencies of the Smithsonian Institution combined. It has been intended, as far as possible, to show the scope of the Museum and to indicate the manner in which the collections at Washington are arranged, labeled, and displayed. It is divided into seventeen departments.

The Department of Mammals.—This exhibit comprises a collection of lemurs—monkey-like animals. About twenty-five species are artistically mounted, while on the walls are casts of the heads of the various species of porpoises and one of the smallest and rarest whalebone whales known to exist.

The Department of Birds.—This exhibit is one of the best ever shown by the Museum. It is placed near the main aisle and is notable for its excellent representation of the parrot family.

The Department of Reptiles and Batrachians.—This presents a group of the principal poisonous snakes of the United States, rattlesnakes and copperheads; tortoises are also shown.

The Department of Fishes.—This exhibit consists of a selected series of deep-sea fishes, supplemented by a number of casts of North American fishes, colored as in life.

The Department of Mollusks.—This exhibit represents the families of mollusks and brachiopods, and shows the utilization of the materials, such as pearl, cameo, etc., derived therefrom.

The Department of Insects.—This is most interesting, illustrating as it does protective resemblance and aggressive mimicry. Butterflies take on the color and appearance of the leaves upon which they most frequently settle. Aggressive mimicry of insects is shown by the imitation in form and color of twigs of trees and of insects known to be their enemies.

The Department of Marine Invertebrates.—The exhibit of this department comprises sponges, corals, and echinoderms. Suspended from the ceiling are life-size models, one of the giant squid and one of the octopus or devil-fish, made familiar to everyone by Victor Hugo's Toilers of the Sea.

The Department of Comparative Anatomy.—This exhibit includes two series of specimens, one showing the modification of the limbs of animals for different modes of life and the other the structure of the human brain.

The Department of Paleontology.—This department is represented by a collection of fossils from ancient bothrioepis to modern bony fish, like the shad, and by synoptic collections of trilobites and crinoids.

The Department of Geology.—A collection from this department illustrates in a most striking way the occurrence and association of gold and silver in nature.

The Department of Minerals.—This instructive exhibit contains about five hundred specimens of selected minerals.

The Department of Ethnology.—This interesting display comprises groups depicting the home life and arts of the Pueblo Indians. A prominent feature of the exhibit is a hut occupied by Norton Sound Eskimos. Fine and extensive collections of dance masks and types of basketry used by the Indians of the Pacific coast are included, as are also specimens of Pueblo pottery and implements for weaving.

The Department of Prehistoric Anthropology.—This department is represented by implements and objects used by prehistoric man at all epochs and periods. The State of Tennessee being rich in implements and articles belonging to prehistoric man, the field of American archæology was left entirely to the local archæologists and private exhibitors, and the entire display of this department is confined to specimens from foreign countries and is about equally divided between the stone and bronze ages.

The Department of Oriental Antiquities.—The display from this department consists of objects illustrating Brahminism and Buddhism, the principal religions of

eastern Asia; Mohammedanism, the literary history of the Bible, and the re
ceremonies of the Jews.

The Department of Technology.—The collections selected for this exhibit
of objects illustrating the early methods of transportation in the Southern
a series of models from the primitive sledge to the introduction of the first r
in the United States, which ran in South Carolina in 1831. There is a mod
full-rigged ship with the various sails, ropes, spars, etc., in place and labele
400 in number, and an accurate and authentic rigged model of the *Savann*
first steamship to cross the Atlantic.

From the electrical collections of the Museum there is displayed a series
senting the early instruments of Franklin, Henry, Morse, Vail, and Page.

Historical section.—Numerous historical objects, coins, and medals, illust
American history, form a prominent feature of the Museum exhibit.

Materia medica.—This section is represented by instructive specimens
ural and cultivated cinchona barks and their products and the alkaloids of

Numerous transparencies—photographs on glass—illustrating particul
tures of the exhibits are placed in the windows.

The National Museum has an interesting ethnological collection of exclu
woman's work among the aborigines displayed in the Woman's Building, a
a portion of the lace collection belonging to Dr. Thomas Wilson.

UNITED STATES FISH COMMISSION.

The exhibit of the United States Fish Commission is located in the sou
corner of the Government building and occupies 5,000 square feet of space
form of an L. It is arranged to show the character of the work performed b
of the divisions of the Commission, the method and apparatus employe
results attained, and is classified under three heads—scientific inquiry, fi
ture, and methods and statistics of the fisheries.

In the section of scientific inquiry are to be found models and illustrat
the vessels of the Commission, specimens of the nets, dredges and other coll
apparatus for scraping the ocean bottom, apparatus used in assorting and p
ing the collections, a model of the sounding machine used in deep-sea wor
samples of the various thermometers used in physical observations. The re
the scientific inquiry explorations of the Commission appear in the form of
besides specimens of corals, crabs, star-fishes, sea-urchins, and various i
brate animals; also extensive series of oysters, showing the rate of grov
different bottoms, and the method of attachment of the spat and the i
produced by starfish, drills, and other enemies of the oyster.

Another interesting exhibit included in this section consists of 150 flexibl
of fishes painted from the fresh or living specimens in faithful imitation of
Two groups of sea lions and fur seals are part of this section.

The methods employed by the fisheries of the South Atlantic, Gulf, and
sippi States are illustrated by models of pound nets, seines, spars, hooks, t
etc. A series of models of vessels shows the development of the fishing ve
the present day from the crude craft first used in this country. The v
phases of fishing life are illustrated by photographs.

In the fish-culture section an effort is made to show in a practical w
methods followed in hatching the eggs of salmonidæ, representing heavy
shad, representing the semibuoyant types, and cod, representing the floating
eggs. Supplies of shad eggs will be delivered weekly until June 10 from
ington and hatched at the east entrance of the grotto. The hatch will be
ated in the Cumberland River. Trout eggs are furnished from the stre
Colorado, and the fish resulting from the same will be in the aquarium duri
exposition.

The aquarium, located in the southeast corner of the building, is a grot
L-shaped structure, 120 feet long, and contains twenty-two tanks. Each
7 feet long, 3 feet high, and 5 feet wide at the top. An equal number of ta
salt water and fresh water, respectively, are arranged on each side of the
with a passageway 12 feet wide dividing them.

The tanks next to the wall contain many of the food-fishes propagated
Commission, besides a large number of the important food and economic
of the Mississippi River Valley and from the States bordering on the Gu
Atlantic coasts. In the other tanks are shown most of the important fishes
Gulf, including the snappers, groupers, pompano, crevalle, and mullet, al
bright-colored tropical fishes, crustaceans, shellfish, etc.

The water for displaying the marine fishes was brought from Morehead
N. C., in tank cars, and is stored in a large reservoir tank beneath the floor.
this tank it is forced, by means of nickel pumps driven by electricity,

smaller tank 18 feet above the floor, located in the southeast corner of the building. It is introduced into the aquarium from the overhead tank by means of gravity. From the aquaria it returns to the reservoir, first passing through a filter, which removes all extraneous matter. As an aid in keeping this water pure, air is being constantly forced into it by means of an air pump, operated by hydraulic pressure. The air is liberated in minute particles at the bottom of the tanks through plugs of basswood inserted in rubber liberator holders attached to rubber tubing, which is connected with a pipe leading from an air-pressure tank.

The fresh water is obtained from an artesian well 84 feet deep, located near the southeast corner of the building, which supplies a constant stream of clear cold water of 58 degrees temperature. Connections have also been made with the city waterworks, so that in case of failure from the well, the aquarium can be maintained in that way. The overflow from the fresh-water aquarium passes into Lake Katherine.

The interior of the grotto is finished in adamant and cement, partly as stucco work and partly plastered, in imitation of a roughly blasted rock tunnel. Where the two arms of the L meet, a rotunda has been formed, with a pool at one side in imitation of an entrance to a water cave. It is illuminated by electric lights. Here and there in the grotto, mosses, ferns, and other evergreens are planted in the rockwork. Two arched portals in imitation of cut stone and of simple architectural design form the entrance to the grotto.

The aquaria tanks are lighted from the rear, and a number of ventilators are placed at the crown of the grotto arch. The rockwork of the interior of the grotto is in imitation of light trap rock; that of the portals of cream-colored limestone, with trimmings in darker shades.

Table exhibited as a wall chart at the Tennessee Centennial.

[Progress in twenty years of education in the South, comprising the States of Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Texas, Mississippi, Louisiana, Arkansas, and Missouri.]

	1875.	1885.	1895.
Total population	16,143,900	20,458,085	24,371,400
School population (5 to 18 years)	5,342,300	6,828,570	8,297,160
THE PUBLIC SCHOOLS.			
Pupils registered in the schools	2,439,843	3,991,233	5,286,606
Per cent of the population	15.11	19.51	21.69
Average daily attendance	1,521,171	2,554,788	3,309,714
Per cent of the registration	62.34	64.00	63.77
Male teachers	39,215	52,758	56,308
Female teachers	20,456	37,416	60,049
Whole number of teachers	59,671	90,174	116,357
Schoolhouses	49,447	76,361	91,288
Value of school property	$17,293,023	$27,884,143	$56,804,049
Average value of schoolhouses	$350	$365	$623
Average number of school days in the year	93	93	106
Expenditure for teachers' salaries	$10,459,446	$15,340,916	$23,195,150
Total expenditure	$13,021,514	$19,253,874	$29,372,900
Expended per capita of population	$0.81	$0.94	$1.21
Expended per pupil in attendance	$8.56	$7.54	$8.72
UNIVERSITIES AND COLLEGES.			
Number of institutions	201	235	297
Professors and instructors	1,602	2,150	3,096
Students	13,014	19,987	26,774

The population was about one-half greater in 1895 than in 1875.

In the public schools the number of pupils was over two and one-half times as great; teachers were nearly twice as numerous, females having increased far more rapidly than males. There were nearly twice as many schoolhouses, and school property was over three and one-fourth times as valuable. The average school term was twelve days longer, and the total expenditure was over two and one-fourth times as much.

Ninety-six new colleges were established between 1875 and 1895; there were 1,494 more professors and over twice as many students at the latter date as at the former.

THE EXPOSITION AND ITS STRUCTURES.

Reprinted from an account by Robert A. Halley in the Nashville American, May 1, 1

The site of the exposition could not be more favorably located, and, i there was no other location which could have been so improved by the expen of a similar amount of money. Including West Side Park and adjacent pro there are about 200 acres available, and the greater part of this is occup one way or another. Less than 2 miles from the public square, which acknowledged center of the city, it is sufficiently elevated to command a fin of the entire western portion of the city and the outlying suburb to the nor and southwest of the city of Nashville. In the distance the State capitol up in its grandeur and the entire aspect is one that is intensely pleasing to t

THE SITE.

When the exposition people took charge they found a park with hundr trees well kept, and to these they have added hundreds more, which no their shade to the visitor and suggest the delightful evenings to be spent them the coming summer nights. The beautiful blue grass covers ever which would otherwise be vacant, and through the green borders wind cha shaded avenues and walkways. Flowers are everywhere, in beds, in mas banks, or single plants throw up their heads proudly wherever there is a spot or a pretty view. Orange trees and lemon trees show their golden or fruits, and the palms of the Tropics rear their stately tufts of dark green f Cacti fill beds in the sunny corners, and here and there all the summer lon be blooms of that strange barbaric beauty and brightness that characteriz wonderful children of the desert. Scarlet geraniums, multitinted coleu fiery nasturtiums lend their glow and color to the beautiful outdoor dec scheme. Through the quiet waters of the lakes glide the gondolas of V steered by the sons of the sunny land where their picturesque garb may b at home, but where it can not lend a more artistic beauty to the land Arbors of native vines, and one arbor where only the strange tropical vines gourd family grow, offer a cool and shaded retreat to those whose feet have the walks of the exposition till they tire from the very surfeit of delight. the trees and in the arbors the sultry heat of the summer may not reac spring and autumn lend added beauty to the prospect when seen throu green curtains of the vines.

MINERALS AND FORESTRY BUILDING.

The first building to greet the eye after the visitor has fully admired th pect and starts on his tour of the displays is that known as the minera forestry building. It stands on the space between the northern shore of Katharine and the southern extremity of Lake Watauga. It is not only nent, but handsome and commodious. It belongs to the Doric order of ar ture as modified by the Romans when they had attained their highest exce in the art of building. Its size is 526 by 124 feet, with an annex 72 by 16 Its main entrances are three in number and each is marked by an imposin tico with six columns. This gives the building a pleasing general effect. columns guarding the entrances are crowned by sculptural gables in high and of beautifully appropriate designs.

The minerals and forestry building is filled with the products of the mi forest, and includes every variety of materials used for building a home, fr humblest cabin to the palace. Not only the marbles, the stones, the cla minerals, the coals, the ores, the precious metals, and the woods of Tennesse the vast number of their varied products in all branches of industrial art, th be shown, but there will be some of the finest products of other States in th lines. Georgia has a magnificent exhibit of her products in minerals ar estry, and other States have made valuable contributions to the same work. structures inside the building are of particular interest—the cabin built o shall County cedar logs taken from a structure which stood for over eighty and the reproduction of the Ann Hathaway cottage, to be used as Ha County's headquarters. The State's display is particularly fine.

THE AUDITORIUM.

West of the minerals and forestry building stands the auditorium, wh big concerts and conventions will have possession during the exposition. V seating capacity of 6,000, it is deemed ample for all gatherings except on

occasions. Colonial in style and Ionic in treatment, its airy porticos, facing the points of the compass, give the building the shape of a short cross, except for the colonnades extending from the main entrance around in either direction to the ends of the building. Above the colonnades are balconies from which immense numbers of people may view the fireworks at night or the pageants of the day. From the tower, 100 feet above the roof, can be had a view of the electrical effects at night, which will not be equaled by any other view on the grounds. In the day from this tower can be had a fine view, not only of the exposition, but of the city of Nashville farther away. The inside finish is of hard wood, and a broad gallery extends around three sides of the hall. The stage and band pit are of ample dimensions, even for the great bands engaged and for the great conventions booked for holding there this summer.

THE GOVERNMENT BUILDING.

In the southern part of the grounds is situated the splendid Government building, 350 by 150 feet in extent, and in the form of a cross. The surmounting dome is 50 feet high and very similar to the dome on the new Congressional Library in Washington. The Government has not been niggardly in supplying the ways and means whereby this great public undertaking may be aided, and not only appropriated the sum of $130,000 for the building and exhibit, but has done more. By act of Congress it provided for the free admission of foreign exhibits intended for exhibition, and this information was transmitted to every foreign Government with an invitation to participate in the exposition. It is needless to say that this building and its varied exhibits will be one of the most interesting and valuable features of the entire exposition. The displays will be on an elaborate scale, and commissioners connected with past expositions have been appointed from every department, so that the advantage of their experience may be had in this instance. The exhibits represent every working department and all will be educational in their nature. The fisheries display, of course, will be the leading attraction to most people, but the models of guns, ships, etc., and the displays of important papers, the show of army costumes from the beginning, and thousands of other objects are worthy of anybody's inspection.

THE WOMAN'S BUILDING.

The woman's building illustrates what woman has accomplished in the past hundred years. The pioneer's cabin of logs near at hand, with spinning wheel, hand loom, and all the early implements with which women of that day did their work, stands as a forcible comparison between the women of then and the women of now. Every appliance of modern art, every convenience for the home, and every decorative idea for the advancement of the higher tastes will be found in the splendid palace which the Exposition management has reared to perpetuate the high regard of Tennesseeans for woman. The Woman's Building is modeled a little after the Hermitage, and some pleasing features of the Grecian architecture have been added with fine effect. The building is 160 by 65 feet, and eight massive columns support the roof, which is surmounted by an observatory. A flight of steps of pink Tennessee marble lead to the entrance. The surroundings are most beautiful, including the splendid Moretti fountain, the three other fountains, besides one in the main hall. Of the interior of the building much might be said without giving an adequate idea of its beauty. The assembly room, decorated by the Knoxville women, will be the meeting place of the many women's conventions arranged for during May and October. There is a parlor for the president, Mrs. Kirkman, elegantly furnished by the contributions of women of the State. There is the magnificent main hall, furnished and decorated by the Memphis women; the red-cedar room, decorated by the Murfreesboro women, where relics of the three Presidents, Jackson, Polk and Johnson, will be seen; Chattanooga room, Georgia room, New York room, Mount Vernon room, Colonial bedroom, Oriental room, model kitchen, where demonstrations in cooking will be given free during the summer, a display of laces of the world, a vast collection of the art works of women in every branch of decorative and applied art; a library of the books written by women, the room where the patents and inventions of women are shown, the salesroom, where articles for sale are kept, and a number of others. All are beautifully decorated and furnished. The halls are full of displays from the counties, and many other things are to be seen.

COMMERCE BUILDING.

Commerce and agriculture are the two words which appear on the seal of the State of Tennessee and the two leading exhibit buildings were therefore very appropriately named thus. The commerce building is the largest structure on the

the improvement of transportation facilities and what was done in the initial stages of the railroad era. The De Witt Clinton train, the first, will stand side by side with the modern locomotive and its train of elegant vestibule cars. Vehicles of every variety will be shown in their most splendid finish.

AGRICULTURE BUILDING.

The products of the soil of Tennessee will be exhibited in the agriculture building, by many considered the gem of the entire exposition group. The Renaissance style of architecture has been used, and the dimensions are 525 feet by 200 feet. The central dome rises 100 feet, while six minor domes lend a charm to the whole which can not be described. Four entrances lead under arches with statuary. The classic lines and beautiful proportions can be seen from almost every part of the grounds to advantage, and at night the building is particularly adapted for an electrical display. The interior decorations of this building have been pronounced superior to anything ever seen before in the history of expositions, surpassing, according to Chicago people themselves, the best seen at the World's Fair. Within will be the vast and varied productions of Tennessee and agricultural implements, still and in motion, from nearly every first-class factory of the country. The decorations made from field products are especially fine, and each of the small domes is decorated with a single product, one in corn, one in tobacco, one in cotton, and one in grain.

MACHINERY BUILDING.

In the machinery building utility and beauty are united, satisfying the artistic tastes and practical demands at the same time. The building is 375 by 138 feet, and in outline and detail it satisfies the most fastidious tastes in architectural art. There is no steam admitted, that being supplied from the power house, some distance away. This will keep the building pleasant on warm days, and enable visitors to see it without discomfort. The various machines in operation in this building will manufacture a number of things of interest, and one of these working exhibits will be a ribbon-weaving loom. The great engines moving noiselessly will be no small part of the interest, as there are some of the finest here that were ever made.

NEGRO BUILDING.

The negro building, which many think the most beautiful on the ground, not only in situation but in design, is one of the finest evidences that could be given of the feelings of the white men of the South for their former slaves. The negroes of Tennessee have the opportunity of their lives to make this display educational in the highest sense, and this they are doing every day. The building was not completed in time for the entire exhibits to be arranged, but since it was turned over the negro department has done great work in getting it stocked with the many fine exhibits which they had gathered from every part of the State and the South. The sight of the building across the fair Lake Watauga is no more beautiful than the displays within, for the outside of the structure can not tell the story that is told by the interior. That story is the story of the negro race from the days of slavery to the present—the story of achievement under obstacles often seemingly impossible to overcome. The school exhibits and the exhibits showing the life of some of the graduates after their school days closed and real life began are of notable interest.

HYGIENE AND EDUCATION.

The hygiene and educational building was really an outgrowth of the increasing size of the exposition. The space assigned these two departments was so soon filled that the need of greater accommodation early made itself felt. The final result was the erection of this structure, and not only has the space been taken up, but the gallery of the commerce building has been taken as an annex to the educational department. The building is in the Renaissance style, and is 144 feet square. A peculiarity is that the four sides are identical in finish, and the only difference to be noted is that on the south side there will be two groups of statuary, representing oratory and philosophy. Inside the educational department will be seen the finest and most complete collection of school work ever shown at an exposition anywhere. This will include all work done by schools of and above the grade of colleges. The lower schools will place there work in the children's building. In the hygiene department will be grouped one of the most

THE FLAGPOLE.

The flagpole is the cause of more questions than anything else on the grounds, because it is invariably asked: "How tall is it?" It is 285 feet, and the pole itself represents Tennessee. There are fifteen columns around the pavilion at the base, each of a different Tennessee wood. These represent the fifteen States that preceded Tennessee into the Union. The sixteenth, the flagpole, is Tennessee.

THE PYTHIAN BUILDING.

The Knights of Pythias have one of the prettiest headquarters ever built at any exposition. In it there will be reading rooms, resting rooms, and all the comforts of a home to be enjoyed by members of this order and their families who come to the exposition.

THE PALACE CAR.

The Seaboard Air Line Palace Car is one thing which is there for a purpose. It is the headquarters of all the towns and cities on the line of that road, and in it about every ten days some one of the cities will be the host and give a banquet which will be attended by citizens of that place and by invited guests.

THE JUNIOR ORDER BUILDING.

The Junior Order of United American Mechanics have a pretty building to the south of the wigwam and will have everything there for the comfort and entertainment of their members.

The Cotton Belt Line has a neat pavilion near the Transportation Building for their exhibits.

The photograph gallery is both attractive and useful, and worth a visit from any one who wants a good picture.

KNOXVILLE BUILDING.

Capitol avenue is a thoroughfare which has been laid out but a short time, but six very handsome structures are either up or nearing completion. The largest of these is the Knoxville Building, in which that prosperous city will have headquarters and which will be filled with Knoxville exhibits. It is nearly complete and will be a most interesting place to visit.

ILLINOIS BUILDING.

At the far end of the avenue is the fair white Illinois Building, the reproduction of the Administration Building at the World's Fair, where the great State of Illinois and the great city of Chicago will do the honors during the exposition. The forty-eight statues which ornament this building are like those on the Administration Building at Chicago, and cost over $1,000 dollars each to model. The same models were used for these.

CINCINNATI BUILDING.

Directly opposite Knoxville Building is the Cincinnati Building, the first to be commenced on the avenue, and it is now about ready for dedication. The people of Cincinnati have from the first taken an interest in this exposition, and as soon as they became satisfied that the exposition was going to be a success they went to work and raised the money for this building.

NEW YORK BUILDING.

New York State is about finishing up a building that will be very delightful to all visitors. It is commodious and well planned, and the interior decorations are in keeping with the character of the structure. The building cost a large amount and will be the center of many pleasant times before the exposition closes.

LOUISVILLE BUILDING.

Louisville is erecting a building the design for which shows the beauty of the idea carried out, and here will be another place where social pleasure will abound. The building will be the rallying place for all Louisville people and for Kentuckians as well, and the close relations between the States will be closer than ever before the show is over.

THE PRESS BUILDING.

The press of the country has been kind to the exposition, and the management has remembered them by erecting for the newspaper men a commodious and convenient place where they may work or rest. The building is of the prettiest design and is now about finished.

CHAPTER XXII.

EDUCATIONAL DIRECTORY.[1]

I.—Chief State School Officers.

Name.	Address.	Official designation.
John O. Turner	Montgomery, Ala	State superintendent of education.
Sheldon Jackson	Sitka, Alaska	General agent of education.
A. P. Shewman	Phœnix, Ariz	Superintendent of public instruction.
Junius Jordan	Little Rock, Ark	State superintendent of public instruction.
Samuel T. Black	Sacramento, Cal	Do.
Miss Grace E. Patton	Denver, Colo	Do.
C. D. Hine	Hartford, Conn	Secretary of State board of education.
	Dover, Del	Do.
W. B. Powell	Washington, D. C	Superintendent of District schools.
W. N. Sheats	Tallahassee, Fla	State superintendent of public instruction.
Gustavus R. Glenn	Atlanta, Ga	State school commissioner.
L. N. B. Anderson	Boise, Idaho	State superintendent of public instruction.
Samuel M. Inglis	Springfield, Ill	Do.
D. M. Geeting	Indianapolis, Ind	Do.
R. C. Barrett	Des Moines, Iowa	Do.
William Stryker	Topeka, Kans	Do.
W. J. Davidson	Frankfort, Ky	Do.
J. V. Calhoun	Baton Rouge, La	State superintendent of education.
W. W. Stetson	Augusta, Me	State superintendent of public schools.
E. B. Prettyman	Baltimore, Md	Secretary of State board of education.
Frank A. Hill	Boston, Mass	Do.
Jason E. Hammond	Lansing, Mich	State superintendent of public instruction.
W. W. Pendergast	St. Paul, Minn	Do.
A. A. Kincannon	Jackson, Miss	State superintendent of education.
John R. Kirk	Jefferson City, Mo	State superintendent of public schools.
E. A. Carleton	Helena, Mont	State superintendent of public instruction.
W. R. Jackson	Lincoln, Nebr	Do.
H. C. Cutting	Carson, Nev	Do.
Fred. Gowing	Concord, N. H	Do.
Chas. J. Baxter	Trenton, N. J	Do.
Placido Sandoval	Santa Fe, N. Mex	Superintendent of public instruction.
Charles R. Skinner	Albany, N. Y	State superintendent of public instruction.
C. H. Mebane	Raleigh, N. C	Do.
J. G. Holland	Bismarck, N. Dak	Do.
Oscar T. Corson	Columbus, Ohio	State commissioner of common schools.
S. N. Hopkins	Guthrie, Okla	Superintendent of public instruction.
G. M. Irwin	Salem, Oreg	State superintendent of public instruction.
Nathan C. Schaeffer	Harrisburg, Pa	Do.
Thomas B. Stockwell	Providence, R. I	Commissioner of public schools.
W. D. Mayfield	Columbia, S. C	State superintendent of education.
Frank Crane	Pierre, S. Dak	State superintendent of public instruction.
Price Thomas	Nashville, Tenn	State superintendent of public instruction.
J. M. Carlisle	Austin, Tex	State superintendent of public instruction.
John R. Park	Salt Lake City, Utah	Do.
Mason S. Stone	Montpelier, Vt	State superintendent of education.
Joseph W. Southall	Richmond, Va	State superintendent of public instruction.
Frank J. Browne	Olympia, Wash	Do.
J. R. Trotter	Charleston, W. Va	State superintendent of free schools.
J. Q. Emery	Madison, Wis	State superintendent of public schools.
Miss Estelle Reel	Cheyenne, Wyo	State superintendent of public instruction.

[1] Corrected to April, 1898.

II.—List of City Superintendents.[1]

ALABAMA.

Anniston, H. C. Gunnels.
Bessemer, G. M. Lovejoy.
Birmingham, J. H. Phillips.
Eufaula, H. M. Weedon.
Florence, H. C. Gilbert.
Huntsville, Sydney J. Mayhew.
Mobile, John D. Yerby.
Montgomery, Charles L. Floyd.
New Decatur, R. R. Harris.
Opelika, T. C. Pinckard.
Selma, R. E. Hardaway.
Tuscaloosa, James H. Foster.

ARIZONA.

Tucson, Samuel P. McCrea.

ARKANSAS.

Fort Smith, J. L. Holloway.
Helena, W. W. Rivers.
Hot Springs, George B. Cook.
Little Rock, J. R. Rightsell.
Pine Bluff, J. H. Hinemon.

CALIFORNIA.

Alameda, D. J. Sullivan.
Berkeley, S. D. Waterman.
Eureka, T. L. Heaton.
Fresno, Morris Elmer Dailey.
Los Angeles, J. A. Foshay.
Napa City, J. L. Shearer.
Oakland, John W. McClymonds.
Pasadena, James D. Graham.
Pomona, F. A. Molyneaux.
Riverside, Eugenie Fuller.[2]
Sacramento, O. W. Erlewine.
San Bernardino, T. H. Kirk.[2]
San Diego, Ellwood P. Cubberley.
San Francisco, Reginald H. Webster
San Jose, Frank P. Russell.
Santa Ana, Lyman Gregory.
Santa Barbara, C. Y. Roop.
Santa Cruz, D. C. Clark.
Santa Rosa, E. Morris Cox.[2]
Stockton, James A. Barr.
Vallejo, Charles A. Fulton.

COLORADO.

Aspen, F. J. Brownscombe.
Colorado Springs, John Dietrich.
Cripple Creek, Charles M. Kingsley.
Denver: District No. 1, Aaron Gove.
District No. 2, L. C. Greenlee.
Denver: District No. 17, J. H. Van Sic
Leadville, J. P. Jackson.
Pueblo: District No. 1, James S. McC
District No. 20, John F. Keat
Trinidad, Eugene C. Stevens.

CONNECTICUT.

Ansonia, W. Alexander Smith.
Branford, Henry C. Moore.[4]
Bridgeport, Charles W. Deane.
Bristol, C. L. Wooding.
Danbury, G. D. Northrup.
Derby, J. W. Peck.
East Hartford, George A. Bowman.[4]
Enfield, James B. Houston.[6]
Greenwich, George P. Fisher.
Hartford, Andrew F. Gates.
Manchester: Town schools, Robert P. Bissell.
Ninth district (incorporated), Thomas Sims.[5]
Meriden, C. M. Williams.
Middletown, Walter B. Ferguson.
Milford, H. I. Mathewson.
Naugatuck, J. H. Carfrey.
New Britain, Giles A. Stuart.
New Haven, Calvin N. Kendall.
New London, Charles B. Jennings.
New Milford, Charles H. Soule.
Norwalk, Charles Olmstead.[5]
Norwich (central district), Nathan I
Rockville, I. M. Agard.
Stamford, Everett C. Willard.
Torrington, Edwin H. Forbes.
Wallingford (central district), I
Knight.
Waterbury, B. W. Tinker.
West Haven, A. M. Drummond.
Westport, Jabez Backus.[5]
Willimantic, George L. Storrs.[5]
Winsted, C. A. Bristol.[5]

DELAWARE.

Newcastle, George W. Andrew.
Wilmington, David W. Harlan.

DISTRICT OF COLUMBIA.

Washington, William B. Powell (superintendent public schools).
Washington, G. F. T. Cook (superinte
ored schools).

FLORIDA.

Jacksonville, Joel D. Mead.[7]
Key West, C. F. Kemp.[7]
Pensacola, N. B. Cook.[7]
St. Augustine, Walter E. Knibloe.
Tampa, L. W. Buchholz.[7]

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[1] Including changes reported to April, 1898.
[2] Supervising principal.
[3] Principal of high school.
[4] Acting visitor.
[5] Secretary of the board of school visitors.
[6] Secretary of the board of school visitors; post-office, Thomsonville.
[7] County superintendent.

II.—List of City Superintendents—Continued.

GEORGIA.

Albany, E. G. Jones.
Americus, J. E. Mathis.
Athens, G. G. Bond.
Atlanta, W. F. Slaton.
Augusta, Lawton B. Evans.
Brunswick, A. L. Franklin.
Columbus, Carleton B. Gibson.
Griffin, J. Henry Walker
Macon, D. Q. Abbott.
Rome, James C. Harris.
Savannah, Otis Ashmore.
Thomasville, K. T. MacLean.[1]

ILLINOIS.

Alton, Robert A. Haight.
Aurora: District No. 5 (east side), C. M. Bardwell.
District No. 4 (west side), A. V. Greenman.
Austin, Newell D. Gilbert.
Beardstown, David T. Harris.
Belleville, H. D. Updike.
Belvidere, Arthur J. Snyder.
Bloomington, Edwin M. Van Petten.
Braidwood: North side, John P. Keevera.
South side, C. H. Root.
Cairo, Taylor C. Clendenen.
Canton, Charles S. Aldrich.
Centralia, Irwin F. Mather.
Champaign, Joseph Carter.
Charleston, W. T. Gooden.
Chicago, Albert G. Lane.
Danville, J. E. Bryan.
Decatur, Enoch A. Gastman.
Dixon, Charles W. Groves.
Duquoin, David B. Rawlins.
East St. Louis: District No. 1, John Richeson.
District No. 2, range 10, T. J. McDonough.[2]
District No. 2, range 9, I. Harry Todd.[2]
Edwardsville, J. M. Parkinson.
Elgin, M. A. Whitney.
Evanston: District No. 1, Homer H. Kinsley.
District No. 2 (South Evanston), Fred. W. Nichols.
District No. 3 (North Evanston), —— ——.
Freeport, R. S. Page.
Galena, Joel A. Harley.
Galesburg, William L. Steele.
Jacksonville, J. W. Henninger.
Joliet, W. H. Campbell.
Kankakee, F. N. Tracy.
Kewanee, A. C. Butler.
Lasalle, L. A. Thomas.
Lincoln, Campbell W. Harriman.
Litchfield, J. E. Wooters.
Macomb, R. C. Rennick.
Mattoon, B. F. Armitage.
Metropolis City, O. J. Page.
Moline, H. M. Slauson.
Monmouth, James C. Burns.
Morris, John M. Boyer.
Oak Park, William H. Hatch.
Ottawa, Samuel H. Heidler.
Pana, William Miner.
Paris, J. D. Shoop.
Pekin, J. A. Hornberger.
Peoria, Newton Charles Dougherty.
Peru, W. W. Wirt.
Quincy, T. W. MacFall.
Rock Island, James E. Ament.
Rockford, P. R. Walker.
Springfield, J. H. Collins.
Spring Valley, A. B. Halladay.
Sterling: District No. 1, W. T. Tuttle.
District No. 3, H. L. Chaplin.
District No. 8, S. B. Hursh.
Streator, W. F. Rocheleau.
Urbana, J. W. Hays.
Waukegan, Frank H. Hall.

INDIANA.

Anderson, John W. Carr.
Aurora, J. R. Houston.
Bloomington, W. H. Fertich.
Bluffton, Ellis D. Walker.
Brazil, John C. Gregg.
Columbus, John A. Carnagey.
Connersville, W. F. L. Sanders.
Crawfordsville, Isaac M. Wellington.
Elkhart, D. W. Thomas.
Evansville, William A. Hester.
Fort Wayne, Justin N. Study.
Frankfort, Benjamin F. Moore.
Goshen, William H. Sims.
Greencastle, Robert A. Ogg.
Hammond, W. C. Belman.
Huntington, Robert I. Hamilton.
Indianapolis, David K. Goss.
Jeffersonville, P. P. Stultz.
Kokomo, Horace G. Woody.
Lafayette, John S. Irwin.
Laporte, O. C. Seelye.
Lawrenceburg, R. Ellsworth Call.
Lebanon, James R. Hart.
Logansport, Albert H. Douglass.
Madison, C. M. McDaniels
Marion, Welford D. Weaver.
Michigan City, Edward Boyle.
Mount Vernon, Edwin S. Monroe.
Muncie, W. R. Snyder.
New Albany, W. H. Hershman.
Peru, —— ——.
Portland, C. L. Hottel.
Richmond, Thomas A. Mott.
Seymour, H. C. Montgomery.
Shelbyville, James H. Tomlin.
South Bend, Calvin Moon.
Terre Haute, William H. Wiley.
Valparaiso, Charles Henderson Wood.
Vincennes, Albert E. Humke.
Wabash, M. W. Harrison.
Warsaw, James H. Henry.
Washington, William F. Axtell.

IOWA.

Atlantic, William Wilcox.
Boone, George I. Miller.
Burlington, Charles Eldred Shelton.
Cedar Rapids, J. T. Merrill.
Centerville, F. E. Stephens.
Clinton, O. P. Bostwick.
Council Bluffs, Joseph C. Hisey.
Creston, O. E. French.
Davenport, J. B. Young.
Des Moines: East side, Amos Hiatt.
North side, Otis E. Smith.
West side, Frank B. Cooper.
Dubuque, F. T. Oldt.
Fort Dodge, F. C. Wildes.
Fort Madison, C. W. Cruikshank.
Iowa City, S. K. Stevenson.
Keokuk, O. W. Meyer.
Lemars, E. N. Coleman.
Lyons, J. H. Breese.
Marshalltown, F. E. Willard.
Mason City, A. R. Sale.
Mount Pleasant, John F. Biggs.
Muscatine, F. M. Witter.
Oskaloosa, Orion C. Scott.
Ottumwa, A. W. Stuart.
Sioux City, H. E. Kratz.
Waterloo: East side, F. J. Sessions.
West side, S. H. Sheakley.

[1] County superintendent.

[2] Principal.

II.—List of City Superintendents—Continued.

KANSAS.

Argentine, A. P. Warrington.
Arkansas City, T. W. Conway.
Atchison, J. H. Glotfelter.
Emporia, B. S. Spiker.
Fort Scott, David M. Bowen.
Hutchinson, George W. Winans.
Junction City, George W. Kendrick.
Kansas City, Larkin L. L. Hanks.
Lawrence, Frank P. Smith.
Leavenworth, Miss Mamie E. Dolphin.
Newton, J. W. Cooper.
Ottawa, William M. Sinclair.
Parsons, S. D. Frazier.
Pittsburg, S. W. Black.
Salina, A. Ludlum.
Topeka, William M. Davidson.
Wellington, H. F. M. Bear.
Wichita, Frank R. Dyer.
Winfield, J. W. Spindler.

KENTUCKY.

Ashland, John G. Crabbe.
Bowling Green, Edward Taylor.
Covington, John Morris.
Dayton, F. S. Alley.
Frankfort, McHenry Rhoads.
Henderson, Edward S. Clark.
Hopkinsville, Livingstone McCartney.
Lexington, William Rogers Clay.
Louisville, E. H. Mark.
Maysville. (No city superintendent.)[1]
Newport, John Burke.
Owensboro, James McGinniss.
Paducah, George O. McBroom.
Paris, E. W. Weaver.
Richmond, R. H. Hough.
Winchester, A. C. Fleshman.

LOUISIANA.

Baton Rouge, R. C. Gordon.
New Orleans, Warren Easton.
Shreveport, J. A. Thigpen.

MAINE.

Auburn, A. P. Wagg.
Augusta: Suburban schools, J. M. Wyman.
Village schools, Caroline S. Fogg.
Cony High School, Albion Hale Brainard, principal.
Williams District, Weston Lewis, principal.
Bangor, Miss Mary S. Snow.
Bath, William H. Winslow.
Belfast, Francis S. Brick.
Biddeford, Royal E. Gould.
Brewer, Mrs. Mertie M. Custis.
Brunswick, Franklin C. Robinson.
Calais, Stephen E. Webber.
Eastport, T. E. St. John.
Ellsworth, I. H. W. Wharff.
Fort Fairfield, C. H. Stevens.
Gardiner, Elliot B. Barber.
Houlton, Harry L. Putnam.
Lewiston, I. C. Phillips.
Oldtown, James W. Cousens.[2]
Portland, Orlando M. Lord.
Rockland, Arthur P. Irving.
Saco, John S. Locke.
Sanford, Fred J. Allen.
Waterville, W. L. Waters.

MARYLAND.

Annapolis, John G. Bannon.[3]
Baltimore, Henry A. Wise.
Cambridge, James L. Bryan.[3]
Cumberland, H. G. Weimer.[3]
Frederick, Ephraim L. Boblitz.[3]
Hagerstown, George C. Pearson.[3]

MASSACHUSETTS.

Abington, W. H. Sanderson.
Adams, J. C. Gray.
Amesbury, E. O. Perkins.[4]
Amherst, William D. Parkinson.
Andover, George Ellsworth Johnson.
Arlington, Georgiana M. Peatfield.[4]
Athol, W. Scott Ward.
Attleboro, J. O. Tiffany.
Barnstable, F. W. Kingman.
Beverly, Adelbert Leon Safford.
Blackstone, Josiah B. Davis.
Boston, Edwin P. Seaver.
Bradford, —— ——.
Braintree, Irving W. Horne.
Bridgewater, W. H. Sanderson.
Brockton, B. B. Russell.
Brookline, Samuel T. Dutton.
Cambridge, Francis Cogswell.
Canton, James S. Perkins.
Chelsea, Eben H. Davis.
Chicopee, Clarence A. Brodeur.
Clinton, Charles L. Hunt.
Concord, William L. Eaton.
Danvers, W. A. Baldwin.
Dedham, Roderick Whittlesey Hine.
Easton, Edward Bartlett Maglathlin.
Easthampton, W. D. Miller.
Everett, Randall J. Condon.
Fall River, William C. Bates.
Fitchburg, Joseph G. Edgerley.
Framingham, Samuel F. Blodgett.
Franklin, Ernest D. Daniels.
Gardner, Louis P. Nash.
Gloucester, Freeman Putney.
Grafton, Stanley H. Holmes.
Greenfield, D. P. Dame.
Haverhill, Roscoe D. McKeen.
Hingham, Elmer L. Curtiss.
Holyoke, P. W. Search.
Hopkinton, Alvan R. Lewis.
Hyde Park, William G. Colesworthy.
Lawrence, John E. Burke.
Lowell, Arthur K. Whitcomb.
Lynn, Orsamus B. Bruce.
Malden, George E. Gay.
Marblehead, John B. Gifford.
Marlboro, J. A. Pitman.
Medford, Charles H. Morss.
Melrose, Benjamin F. Robinson.
Methuen, A. Everett White.
Middleboro, Asher J. Jacoby.
Milford, Charles W. Haley.

[1] G. W. Blatterman, county superintendent, signs reports.
[2] Supervisor.
[3] County school examiner.
[4] Secretary of the school committee.

II.—List of City Superintendents—Continued.

MASSACHUSETTS—Continued.

Millbury, C. S. Lyman.
Milton, M. W. Richardson.
Natick, Frank Edson Parlin.
New Bedford, William E. Hatch.
Newburyport, William P. Lunt.
Newton, George I. Aldrich.
North Adams, Isaac Freeman Hall.
Northampton, Alvin F. Pease.
North Attleboro, William C. Hobbs.
Northbridge, S. A. Melcher.
Orange, Lizzie A. Mason.
Palmer, A. C. Thompson.
Peabody, John B. Gifford.
Pittsfield, Eugene Bouten.
Plymouth, Francis J. Heavens.
Provincetown, Clarence W. Fearing.
Quincy, H. W. Lull.
Reading, Charles E. Hussey.
Revere, Frank J. Peaslee.
Rockport, Mary L. Lincoln.
Salem, John W. Perkins.
Saugus, Charles E. Stevens.
Somerville, Gordon A. Southworth.
Southbridge, William Harper.
South Hadley, Edward H. McLachlin.
Spencer, Wyman C. Fickett.
Springfield, Thomas M. Balliet.
Stoneham, Charles E. Stevens.
Taunton, C. F. Boyden.
Wakefield, Charles E. Hussey.
Waltham, Henry Whittemore.
Ware, Samuel W. Hallett.
Warren, Albert Robinson.
Watertown, Charles G. Ham.
Webster, J. I. Buck.
Wellesley, Marshall Livingston Perrin.
Westboro, H. C. Waldron.
Westfield, George H. Danforth.
West Springfield, Ulysses G. Wheeler.
Weymouth, I. M. Norcross.
Winchendon, David B. Locke.
Woburn, Thomas Emerson.
Worcester, Clarence F. Carroll.

MICHIGAN.

Adrian, A. E. Curtis.
Albion, Warren C. Hull.
Alpena, George A. Hunt.
Ann Arbor, Walter S. Perry.
Ausable, C. M. Jansky.
Battlecreek, Walter G. Coburn.
Bay City, John A. Stewart.
Benton Harbor, Eugene A. Wilson.
Big Rapids, James R. Miller.
Cadillac, James Hamilton Kaye.
Charlotte, O. L. Miller.
Cheboygan, William C. Thompson.
Coldwater, Egbert L. Briggs.
Detroit, W. E. Robinson.
Escanaba, George P. Fleisher.
Flint, F. R. Hathaway,
Grand Haven, John A. Crawford.
Grand Rapids, W. W. Chalmers.
Hillsdale, W. L. Shuart.
Holland, C. M. McLean.
Ionia, C. L. Bemis.
Iron Mountain, Thomas W. Paton.
Ironwood, L. L. Wright.
Ishpeming, Richard Hardy.
Jackson: District No. 1, L. S. Norton.
District No. 17, Martin L. Palmer.
Kalamazoo, O. E. Latham.
Lansing, S. B. Laird.
Ludington, H. T. Blodgett.
Manistee, Albert Jennings.
Marquette, Anna M. Chandler.
Menominee, O. I. Woodley.
Monroe, J. F. Rieman.
Mount Clemens, S. C. Price.
Muskegon, David Mackenzie.
Negaunee, F. Dayton Davis.
Niles, J. D. Schiller.
Owosso, J. W. Simmons.
Pontiac, Hugh Brown.
Port Huron, James H. Boazell.
Saginaw: East side, A. S. Whitney.
West side, Edwin C. Thompson.
St. Joseph, George W. Loomis.
Sault Ste. Marie, E. E. Ferguson.
Traverse City, Charles T. Grawn.
West Bay City, N. A. Richards.
Wyandotte, A. W. Dasef.
Ypsilanti, Austin George.

MINNESOTA.

Anoka, Zenas N. Vaughn.
Austin, W. F. F. Selleck.
Brainerd, Miles H. Carleton.
Duluth, Robert E. Denfeld.
Faribault, George A. Franklin.
Fergus Falls, Caswell A. Ballard.
Mankato, George F. Kenaston.
Minneapolis, Charles M. Jordan.
New Ulm, E. T. Critchett.
Owatonna, L. H. Ford.
Red Wing, F. V. Hubbard.
Rochester, F. D. Budlong.
St. Cloud, S. S. Parr.
St. Paul, Virgil G. Curtis.
St. Peter, Edgar George.
Stillwater, Frank A. Weld.
Winona, J. A. Tormey.

MISSISSIPPI.

Columbus, J. M. Barrow.
Greenville, E. E. Bass.[1]
Jackson, J. C. Hardy.
Meridian, J. C. Faut.
Natchez, J. W. Henderson.
Vicksburg, Charles Pendleton Kemper.

MISSOURI.

Bonneterre, J. H. Malugen.
Boonville, D. T. Gentry.
Brookfield, L. A. Wirick.
Cape Girardeau, E. E. McCullough.
Carrollton, L. W. Rader.
Carthage, W. J. Stevens.
Chillicothe, Oliver Stigall.
Clinton, Charles B. Reynolds.
Columbia, R. H. Emberson.
Desoto, Charles M. Gill.
Fulton, John P. Gass.
Hannibal, R. B. D. Simonson.
Independence, J. N. Patrick.
Jefferson City, J. U. White.
Joplin, Joseph D. Elliff.
Kansas City, James M. Greenwood.
Kirksville, W. R. Holliday.
Lexington, H. D. Demand.
Louisiana, A. W. Riggs.
Marshall, T. E. Spencer.
Maryville, Benjamin F. Duncan.
Mexico, D. A. McMillan.
Moberly, J. A. Whiteford.
Nevada, A. W. Duff.
Richhill, John P. Thurman.
St. Charles, George W. Jones.
St. Joseph, Edward B. Neely.
St. Louis, F. Louis Soldan.
Sedalia, George V. Buchanan.
Springfield, Jonathan Fairbanks.
Trenton, H. E. Du Bois.
Warrensburg, L. W. Martin.
Webb City, A. G. Young.

[1] Superintendent white schools.

II.—List of City Superintendents—Continued.

MONTANA.

Butte, J. P. Hendricks.
Great Falls, E. O. Marsh
Helena, James E. Klock.

NEBRASKA.

Beatrice, Ossian H. Brainerd.
Fremont, Daniel Miller.
Grand Island, Robert J. Barr.
Hastings, Edwin N. Brown.
Kearney, Jesse T. Morey.
Lincoln, J. F. Saylor.
Nebraska City, W. H. Skinner.
Omaha, Carroll G. Pearse.
Plattsmouth, John G. McHugh.
South Omaha, A. A. Munro.

NEVADA.

Virginia City, F. P. Langan.

NEW HAMPSHIRE.

Concord (Union district), Louis J. Rundlett.
Dover, Channing Folsom.
Keene (Union district), Thaddeus William Harris.
Laconia, —— ——.
Manchester, William E. Buck.
Nashua, James H. Fassett.
Portsmouth, James C. Simpson.
Rochester, William N. Cragin.

NEW JERSEY.

Atlantic City, W. M. Pollard.
Bayonne, Charles M. Davis.
Bordentown, William Macfarland.[1]
Bridgeton, John S. Turner.
Burlington, Wilbur Watts.[1]
Camden, Martin V. Bergen.
Elizabeth, William J. Shearer.
Gloucester, John C. Stinson.
Hackensack, John Terhune.[2]
Harrison, John Dwyer.[1]
Hoboken, A. J. Demarest.
Jersey City, Henry Snyder.
Lambertville, Lambert H. Sergeant.
Long Branch, Christopher Gregory.
Millville, E. C. Stokes.
Morristown, W. L. R. Haven.
New Brunswick, George G. Ryan.
Newark, Charles B. Gilbert.
Orange, Usher W. Cutts.
Passaic, H. H. Hutton.
Paterson, William D. Mauro.
Perth Amboy, S. E. Shull.
Phillipsburg, H. Budd Howell.
Plainfield, Henry M. Maxson.
Rahway, Henry B. Rollinson.
Redbank, Richard Case.
Salem, Morris H. Stratton.
South Amboy, R. M. Fitch.[3]
Trenton, Leslie C. Pierson, superi
B. C. Gregory, supervising princip
Town of Union, Otto Ortel.[4]
Vineland, J. J. Unger.
Woodbury, Theodore Green.

NEW MEXICO.

Albuquerque, Charles E. Hodgin.
Santa Fe, Tilmon Jenkins.

NEW YORK.

Albany, Charles W. Cole.
Albion, Freeman A. Greene.
Amsterdam, Charles S. Davis.
Auburn, Benjamin B. Snow.
Batavia, John Kennedy.
Binghamton, Rufus H. Halsey.
Buffalo, Henry P. Emerson.
Canandaigua, J. Carlton Norris.
Catskill, E. G. Lautman.
Cohoes, George E. Dixon.
Corning, Leigh R. Hunt.
Cortland, F. E. Smith.
Dansville, W. G. Carmer.[1]
Dunkirk, John W. Babcock.
Elmira, Elias J. Beardsley.
Fishkill on the Hudson, Lewis N. Crane.
Fulton, B. G. Clapp.
Geneva, William H. Truesdale.
Glens Falls, Sherman Williams.
Gloversville, James A. Estee.
Green Island, James Heatley.
Haverstraw, L. O. Markham.
Hempstead, Wallace S. Newton.
Hoosic Falls, H. H. Snell.
Hornellsville, William R. Prentice.
Hudson, F. J. Sagendorph.
Ilion, Judson I. Wood.
Ithaca, H. W. Foster.
Jamestown, Rovillus R. Rogers.
Johnstown, William S. Snyder.
Kingston: District No. 5 ("Kingst
district"), Charles M. R
District No. 1, P. H. Cull
office, Rondout).
District No. 2, William E.
(post-office, Rondout).
District No. 3, Henry Pow
office, Rondout).
District No. 4, William A
nell[1] (post-office, Kingst
Lansingburg, George F. Sawyer.
Little Falls, Thomas A. Caswell.
Lockport, Emmet Belknap.
Lyons, W. H. Kinney.
Malone, Sarah L. Perry.
Matteawan, Gurdon R. Miller.
Medina, T. H. Armstrong.
Middletown, James F. Tuthill.
Mount Vernon, Charles E. Nichols.
Newark, John W. Robinson.
New Rochelle, Isaac E. Young.
New York, William H. Maxwell.
Newburg, R. V. K. Montfort.
Niagara Falls, Nathaniel L. Benham
North Tonawanda, Clinton S. Marsh
Norwich, Elbert W. Griffith.
Nyack, Ira H. Lawton.
Ogdensburg, Barney Whitney.
Olean, Fox Holden.
Oneida: District No. 25, Frank W. Je

[1] Principal.
[2] County superintendent.
[3] Supervising principal.
[4] Post-office, Weehawken.

II.—List of City Superintendents—Continued.

NEW YORK—Continued.

Oneida: District No. 26, H. H. Douglas.
Oneonta, William C. Franklin.
Oswego, George E. Bullis.
Owego, Edwin P. Recordon.
Peekskill: District No. 7 (Drumhill district), John Millar.
District No. 8 (Oaksido district), A. D. Dunbar.
Penn Yan, George Howard Hoxie.
Plattsburg, James G. Riggs.
Port Chester, John C. Rockwell.
Port Jervis, John M. Dolph.
Poughkeepsie, Edward Burgess.
Rensselaer, R. W. Wickham.
Rochester, Milton Noyes.
Rome, Harrison T. Morrow.
Saratoga Springs, Thomas R. Kneil.
Saugerties, Fred N. Moulton.
Schenectady, Samuel B. Howe.
Seneca Falls, Charles T. Andrews.
Sing Sing, J. Irving Gorton.
Syracuse, A. B. Blodgett.
Tonawanda, F. J. Diamond.
Troy, John H. Willets.
Utica, George Griffith.
Waterford, Alexander Falconer.
Waterloo, Thomas C. Wilber.[1]
Watertown, William G. Williams.
Watervliet, James K. Gatchell.
Waverly, P. M. Hull.
White Plains, Ralph A. Stewart.
Whitehall, Wilber W. Howe.
Yonkers, Charles E. Gorton.

NORTH CAROLINA.

Asheville, J. D. Eggleston, jr.
Charlotte, Alexander Graham.
Concord, James F. Shinn.
Durham, Clinton W. Toms.
Fayetteville, B. C. McIver.
Goldsboro, J. I. Foust.
Henderson, A. M. Matics.[2]
Newbern, John S. Long.
Raleigh, Logan D. Howell.
Reidsville, Edwin S. Sheppe.
Salisbury, R. G. Kizer.
Washington, J. Edwin Bowman.
Wilmington, M. C. S. Noble.
Winston, John Jay Blair.

NORTH DAKOTA.

Fargo, Darius Steward.
Grand Forks, J. Nelson Kelley.

OHIO

Akron, R. S. Thomas.
Alliance, John E. Morris.
Ashland, W. S. Robinson.
Ashtabula, J. S. Lowe.
Avondale, B. F. Graham.[1]
Bellaire, Henry G. Williams.
Bellefontaine, Henry Whitworth.
Brooklyn, Charles M. Knight.
Bucyrus, J. J. Bliss.
Cambridge, H. B. Williams.
Canton, L. W. Day.
Chillicothe, I. M. Jordan.
Cincinnati, William H. Morgan.
Circleville, M. H. Lewis.
Cleveland, Lewis H. Jones.
Columbus, J. A. Shawan.
Coshocton, John F. Fenton.
Dayton, W. J. White.
Defiance, J. J. Burns.
Delaware, George A. Chambers.
Delphos, E. W. Hastings,
East Liverpool, R. E. Rayman.
Elyria, Henry M. Parker.
Findlay, J. W. Zellar.
Fostoria, H. L. Frank.
Fremont, W. W. Ross.
Galion, I. C. Gunther.
Gallipolis, R. B. Ewing.
Greenville, C. L. Brumbaugh.
Hamilton, S. L. Rose.
Hillsboro, H. C. Minnich.
Ironton, M. C. Smith.
Jackson, J. E. Kinnison.
Kent, A. B. Stutzman.
Kenton, E. P. Dean.
Lancaster, Elijah Burgess.
Lima, Charles C. Miller.
Lorain, F. D. Ward.
Mansfield, Edmund D. Lyon.
Marietta, W. W. Boyd.
Marion, Arthur Powell.
Martins Ferry, W. H. Stewart.
Massillon, Edmund A. Jones.
Middletown, J. H. Rowland.
Mount Vernon, Lewis D. Bonebrake.
Nelsonville, Fletcher S. Coultrap.
New Philadelphia, G. C. Maurer.
Newark, J. C. Hartzler.
Niles, Frank J. Roller.
Norwalk, A. D. Beechy.
Oberlin, George W. Waite.
Painesville, George W. Ready.
Piqua, C. W. Bennett.
Pomeroy, T. C. Flanegin.
Portsmouth, Thomas Vickers.
Salem, W. P. Burris.
Sandusky, E. J. Shives.
Sidney, E. S. Cox.
Springfield, Carey Boggess.
Steubenville, Henry Ney Mertz.
Tiffin, J. H. Snyder.
Toledo, A. A. McDonald.
Troy, Charles L. Van Cleve.
Uhrichsville, R. B. Smith.
Urbana, William McK. Vance.
Van Wert, G. W. McGinniss.
Wapakoneta, C. W. Williamson.
Warren, C. E. Carey.
Washington Court-House, N. H. Chaney.
Wellston, Ezekiel Wallace Patterson.
Wellsville, James L. MacDonald.
Wooster, Charles Haupert.
Xenia, Edwin B. Cox.
Youngstown, F. Trendley.
Zanesville, W. D. Lash.

OKLAHOMA.

Oklahoma, B. F. Nihart.

OREGON.

Astoria, R. N. Wright.
Portland, Frank Rigler.
Salem, George A. Peebles.

[1] Principal.
[2] Supervisor.

II.—List of City Superintendents—Continued.

PENNSYLVANIA.

Allegheny, John Morrow.
Allentown, Francis D. Raub.
Altoona, D. S. Keith.
Archbald, —— ——.
Ashland, William C. Estler.
Beaver Falls, Charles J. Book.
Bellefonte, David O. Etters.
Bethlehem, George W. Twitmyer.
Bloomsburg, L. Parvin Sterner.
Braddock, John S. Keefer.
Bradford, E. E. Miller.
Bristol, Louise D. Baggs.
Butler, John A. Gibson.
Carbondale, John J. Forbes.
Carlisle, Samuel B. Shearer.
Chambersburg, —— ——.
Chester, Charles F. Foster.
Columbia, S. H. Hoffman.
Connellsville, W. G. Gans.[2]
Conshohocken, J. Horace Landis.)
Corry, A. D. Colegrove,
Danville, James C. Houser.
Dubois, W. L. Greene.
Dunmore, E. D. Bovard.
Easton, William W. Cottingham.
Erie, H. C. Missimer.
Etna, J. Q. A. Irvine.[1]
Franklin, N. P. Kinsley.
Greensburg, A. M. Wyant.
Greenville, T. S. Lowden.
Hanover, George R. Prowell.
Harrisburg, Lemuel O. Foose.
Hazleton, David A. Harman.
Homestead, John C. Kendall.
Huntingdon, Kimber Cleaver.
Johnstown, J. M. Berkey.
Lancaster, R. K. Buehrle.
Lansford, I. K. Witmer.
Lebanon, Cyrus Boger.
Lock Haven, John A. Robb.
McKeesport, H. F. Brooks.
Mahanoy City, William N. Ehrhart.
Mauchchunk, James J. Bevan.
Meadville, Henry V. Hotchkiss.
Middletown, H. H. Weber.
Milton, Lewis A. Beardsley.
Minersville, H. H. Spayd.[1]
Monongahela City, E. W. Dalbey.[1]
Mount Carmel, Samuel Halsey Dean.
Nanticoke, John William Griffith.
New Brighton, Joseph Burdette Riche
Newcastle, —— ——.
Norristown, Joseph K. Gotwals.
Oil City, C. A. Babcock.
Olyphant, M. W. Cumming.
Philadelphia, Edward Brooks.
Phœnixville, Harry F. Leister.
Pittsburg, George J. Luckey.
Pittston, Robert Shiel.[2]
Plymouth, Frank E. Pickinger.
Pottstown, William W. Rupert.
Pottsville, B. F. Patterson.
Reading, Ebenezer Mackey.
Renovo, James W. Elliott.
St. Clair, Thomas G. Jones.
Scranton, George Howell.
Shamokin, William F. Harpel.
Sharon, J. A. McLaughry.
Sharpsburg, E. B. McRoberts.
Shenandoah, C. B. Bogart.
South Bethlehem, Owen R. Wilt.
South Chester, J. C. Hockenberry.[3]
South Easton, A. J. La Barre.[4]
Steelton, L. E. McGinnis.
Sunbury, C. D. Oberdorf.
Tamaqua, Robert F. Ditchburn.
Tarentum, S. M. Williamson.
Titusville, Henry Pease.
Towanda, J. M. Arnold.
Tyrone, C. E. Kauffman.
Uniontown, Lee Smith.
Warren, W. L. MacGowan.
Washington, A. G. Bradon.
Waynesboro, R. T. Adams.[1]
West Chester, Addison Jones.
Wilkesbarre, James M. Coughlin.
Wilkinsburg, J. D. Anderson.[2]
Williamsport, Charles Lose.
York, Atreus Wanner.

RHODE ISLAND.

Bristol, John P. Reynolds.
Burrillville, Allen P. Keith.
Central Falls, Frank O. Draper.
Cranston, Valentine Almy.
Cumberland, A. L. Barbour.[6]
East Providence, William W. Ellis.
Johnston, Sarah D. Barnes.[5]
Newport, Benjamin Baker.
Pawtucket, Gilman C. Fisher.
Providence, Horace S. Tarbell.
Westerly, C. H. Babcock.
Woonsocket, Frank E. McFee.

SOUTH CAROLINA.

Charleston, Henry P. Archer.
Columbia, E. S. Dreher.
Greenville, E. L. Hughes.
Spartanburg, Frank Evans.
Sumter, S. H. Edmunds.

SOUTH DAKOTA.

Sioux Falls, Frank C. McClelland.
Yankton, Edmund J. Vert.

TENNESSEE.

Chattanooga, A. T. Barrett.
Clarksville, J. W. Graham.
Columbia, W. E. Bostick.
Jackson, Thomas H. Paine.
Johnson City, S. C. Brown.
Knoxville, Albert Ruth.
Memphis, George W. Gordon.
Nashville, H. C. Weber.

TEXAS.

Austin, T. G. Harris.
Brenham, Edward W. Tarrant.
Brownsville, J. F. Cummings.
Corpus Christi, Charles W. Crossley.
Corsicana, J. T. Hand.
Dallas, J. L. Long.
Denison, William Gay.
El Paso, G. P. Putnam.
Fort Worth, E. E. Bramlette.
Gainesville, E. F. Comegys.
Galveston, John W. Hopkins.
Greenville, J. H. Van Amburgh.
Houston, W. H. Kimbrough.
Laredo, F. A. Parker.
Marshall, W. H. Atteberg.
Palestine, P. V. Pennybacker.
Paris, J. G. Wooten.
San Antonio, William Schoch.
Sherman, P. W. Horn.
Temple, J. E. Blair.
Tyler, W. T. Potter.
Waco, Charles T. Alexander.

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[1] Principal.
[2] Supervising principal.
[3] Post-office, Thurlow.
[4] Post-office, Easton.
[5] Post-office, Olneyvi
[6] Post-office, Ashton.

II.—List of City Superintendents—Continued.

UTAH.

Logan, Jennie Hubbard.
Ogden, William Allison.
Provo, William S. Rawlings.
Salt Lake City, J. F. Millspaugh.

VERMONT.

Barre, O. D. Mathewson.
Brattleboro, Miss M. Belle Smith.
Burlington, Henry O. Wheeler.
Montpelier, J. H. Lucia.
Rutland, Alfred Turner.
St. Albans, Francis A. Bagnall.
St. Johnsbury, Herbert J. Jones.

VIRGINIA.

Alexandria, Kosciusko Kemper.
Charlottesville, F. A. Massie.
Danville, Abner Anderson.
Fredericksburg, Benjamin P. Willis.
Lynchburg, E. C. Glass.
Manchester, A. H. Fitzgerald.[1]
Newport News, Thomas Temple Powell.
Norfolk, Richard A. Dobie.
Petersburg, D. M. Brown.
Portsmouth, John C. Ashton.
Richmond, William F. Fox.
Roanoke, B. Rust.
Staunton, John H. Bader.
Winchester, Maurice M. Lynch.

WASHINGTON.

Fairhaven, W. J. Hughes.
New Whatcom, Harry Pattison.
Olympia, F. B. Hawes.
Port Townsend, J. M. Hitt.
Seattle, Frank J. Barnard.
Spokane, D. Bemiss.
Tacoma, R. S. Bingham.
Walla Walla, R. C. Kerr.

WEST VIRGINIA.

Charlestown, Wright Denny.
Huntington, Wellington D. Sterling.
Martinsburg, C. H. Cole.
Parkersburg, W. M. Straus.
Wheeling, W. H. Anderson.

WISCONSIN.

Antigo, John E. Martin.
Appleton, Carrie E. Morgan.
Ashland, Bennett B. Jackson
Baraboo, J. E. Ne Collins.
Beaver Dam, C. W. Voorus.
Beloit, C. W. Merriman.
Berlin, N. M. Dodson.
Chippewa Falls, Robert L. Barton.
Depere: East side, Violet M. Alden.
West side, J. D. Conley.
Eau Claire, Otis C. Gross.
Fond du Lac, L. A. Williams.
Green Bay, F. G. Kraege.
Janesville, D. D. Mayne.
Kaukauna, H. S. Cooke.
Kenosha, Gerald R. McDowell.
Lacrosse, John P. Bird
Madison, R. B. Dudgeon.
Manitowoc, Edwin R. Smith.[2]
Marinette, J. T. Edwards.
Menasha, Joseph L. Fieweger.
Menominee, Judson E. Hoyt.
Merrill, ——— ———.
Milwaukee, H. O. R. Siefert.
Monroe, Alvin F. Rote.
Neenah, E. A. Williams.
Oconto, R. P. Smith.
Oshkosh, Buel T. Davis.
Portage, A. C. Kellogg.
Racine, J. B. Estabrook.
Sheboygan, George Heller.
Stevens Point, Henry A. Simonds.
Superior, William H. Elson.
Watertown, Charles F. Viebahn.
Waukesha, H. L. Terry.
Wausau, Karl Mathie.
West Greenbay, A. W. Burton.
Whitewater, A. A. Upham.

WYOMING.

Cheyenne, James O. Churchill.
Laramie, Frank W. Lee.

III.—College Presidents.

I.—*Colleges for males and coeducational colleges of liberal arts.*

Name of president.	University or college.	Address.
E. L. Blalock, A. M.	Blount College	Blountsville, Ala.
Benedict Menges, O. S. B.	St. Bernard College	Cullman, Ala.
Frank M. Roof	Howard College	East Lake, Ala.
John O. Keener, D. D.	Southern University	Greensboro, Ala.
Leonidas Jones and A. F. Trimble.	Lafayette College	Lafayette, Ala.
Henry J. Willingham, A. B.	Linoville College	Linoville, Ala.
C. S. Dinkins	Alabama Baptist Colored University.	Selma, Ala.
Michael Moynihan, S. J.	Spring Hill College	Spring Hill, Ala.
James K. Powers, LL. D.	University of Alabama	University, Ala.
M. M. Parker, A. M.	University of Arizona	Tucson, Ariz.
Cadesman Pope	Arkadelphia Methodist College	Arkadelphia, Ark.
John W. Conger, A. M.	Ouachita Baptist College	Do.
Eugene R. Long, Ph. D.	Arkansas College	Batesville, Ark.

[1] Principal.
[2] County superintendent.

III.—College Presidents—Continued.

I.—*Colleges for males and coeducational colleges of liberal arts*—Continued.

Name of president.	University or college.	Address.
James A. Laughlin	Arkansas Cumberland College	Clarksville, Ark.
A. C. Millar, A. M	Hendrix College	Conway, Ark.
J. L. Buchanan, LL. D	Arkansas Industrial University	Fayetteville, Ark.
Thomas Mason, D. D	Philander Smith College	Little Rock, Ark.
M. Shelby Kennard, A. M	Mountain Home Baptist College	Mountain Home, Ark
G. T. Storey	Searcy College	Searcy, Ark.
Martin Kellogg, LL. D	University of California	Berkeley, Cal.
	Pomona College	Claremont, Cal.
Eli McClish, D. D	University of the Pacific	College Park, Cal.
James W. Parkhill, A. M	Occidental College	Los Angeles, Cal.
	St. Vincent's College	Do.
T. G. Brownson	California College	Oakland, Cal.
Brother Bettelin	St. Mary's College	Do.
Walter A. Edwards, A. M	Throop Polytechnic Institute	Pasadena, Cal.
John P. Frieden, S. J	St. Ignatius College	San Francisco, Cal.
Joseph Riordan, S. J	Santa Clara College	Santa Clara, Cal.
J. S. Austin, A. M	Pacific Methodist College	Santa Rosa, Cal.
D. S. Jordan, Ph. D., LL. D	Leland Stanford Junior University	Stanford University, C
Geo. W. White, A. M	University of Southern California	University, Cal.
James H. Baker, LL. D	University of Colorado	Boulder, Colo.
Wm. F. Slocum, jr., LL. D	Colorado College	Colorado Springs, Co
John B. Guida, S. J	College of the Sacred Heart	Denver, Colo.
Wm. F. McDowell, Ph. D., S. T. D	University of Denver	University Park, Colo
Geo. W. Smith, D. D., LL. D	Trinity College	Hartford, Conn.
B. P. Raymond, D. D., LL. D	Wesleyan University	Middletown, Conn.
Timothy Dwight, D. D., LL. D	Yale University	New Haven, Conn.
Geo. A. Harter, Ph. D	Delaware College	Newark, Del.
Thomas J. Conaty, D. D	Catholic University of America	Washington, D. C.
B. L. Whitman, D. D	Columbian University	Do.
J. Havens Richards, S. J	Georgetown University	Do.
J. E. Rankin, D. D., LL. D	Howard University	Do.
E. M. Gallaudet, Ph. D., LL. D	Gallaudet College	Do.
C. Gillespie, S. J	Gonzaga College	Do.
John F. Forbes, Ph. D	John B. Stetson University	Deland, Fla.
J. T. Nolen, A. B., B. D	Florida Conference College	Leesburg, Fla.
Charles H. More, Ph. D	St. Leo Military College	St. Leo, Fla.
A. A. Murphree, A. B	Seminary West of the Suwanee River	Tallahassee, Fla.
Geo. M. Ward, A. M., B. D	Rollins College	Winter Park, Fla.
Wm. E. Boggs, D. D., LL. D	University of Georgia	Athens, Ga.
George Sale	Atlanta Baptist College	Atlanta, Ga.
Horace Bumstead, D. D	Atlanta University	Do.
James M. Henderson	Morris Brown College	Do.
George W. Cole	Bowdon College	Bowdon, Ga.
Joseph S. Stewart	North Georgia Agricultural College	Dahlonega, Ga.
P. D. Pollock, LL. D	Mercer University	Macon, Ga.
W. A. Candler, D. D	Emory College	Oxford, Ga.
Charles M. Melden, Ph. D	Clark University	South Atlanta, Ga.
F. G. Webb, A. M	Nannie Lou Warthen College	Wrightsville, Ga.
W. F. Robison	Young Harris College	Young Harris, Ga.
Franklin B. Gault, M. S	University of Idaho	Moscow, Idaho.
J. G. Evans, D. D., LL. D	Hedding College	Abingdon, Ill.
E. M. Smith	Illinois Wesleyan University	Bloomington, Ill.
M. J. Marsile, C. S. V	St. Viateur's College	Bourbonnais, Ill.
W. H. Crowell, A. M., chairman	Blackburn University	Carlinville, Ill.
J. M. Ruthrauff, D. D	Carthage College	Carthage, Ill.
Andrew S. Draper, LL. D	University of Illinois	Champaign, Ill.
J. F. X. Hoeffer, S. J	St. Ignatius College	Chicago, Ill.
Wm. R. Harper, Ph. D., D. D	University of Chicago	Do.
W. E. Lugenbeel	Austin College	Effingham, Ill.
Daniel Irion	Evangelical Proseminary	Elmhurst, Ill.
J. H. Hardin, LL. D	Eureka College	Eureka, Ill.
Henry W. Rogers, LL. D	Northwestern University	Evanston, Ill.
J. A. Leavitt, D. D	Ewing College	Ewing, Ill.
J. E. Bittinger	Northern Illinois College	Fulton, Ill.
J. H. Finley, Ph. D	Knox College	Galesburg, Ill.
Charles E. Nash, D. D	Lombard University	Do.
J. C. McClure, A. M	Greer College	Hoopeston, Ill.
John E. Bradley, Ph. D	Illinois College	Jacksonville, Ill.
James G. K. McClure, D. D	Lake Forest University	Lake Forest, Ill.
M. H. Chamberlin, A. M., LL. D	McKendree College	Lebanon, Ill.
A. E. Turner, A. M	Lincoln University	Lincoln, Ill.
	Monmouth College	Monmouth, Ill.
H. J. Kiekhoefer, A. M	Northwestern College	Naperville, Ill.
Louis Haas, O. S. B	St. Bede College	Peru, Ill.
B. W. Baker, A. M	Chaddock College	Quincy, Ill.
Nicholas Leonard, O. S. F	St. Francis Solanus College	Do.
Olof Olsson, D. D., Ph. D	Augustana College	Rock Island, Ill.
Hugoline Storff, O. S. F	St. Joseph's Diocesan College	Teutopolis, Ill.
Austen K. de Blois, Ph. D	Shurtleff College	Upper Alton, Ill.
B. L. Seneff, A. B	Westfield College	Westfield, Ill.

III.—College Presidents—Continued.

I.—*Colleges for males and coeducational colleges of liberal arts*—Continued.

Name of president.	University or college.	Address.
Chas. A. Blanchard	Wheaton College	Wheaton, Ill.
J. H. Scott	Indian University	Bacone, Ind. T.
W. R. King, A. M	Henry Kendall College	Muscogee, Ind. T.
Joseph Swain, LL. D	Indiana University	Bloomington, Ind.
Geo. S. Burroughs, Ph. D	Wabash College	Crawfordsville, Ind.
Jos. Schmidt	Concordia College	Fort Wayne, Ind.
William T. Stott, D. D	Franklin College	Franklin, Ind.
H. A. Gobin, D. D	De Pauw University	Greencastle, Ind.
D. W. Fisher, D. D., LL. D	Hanover College	Hanover, Ind.
Scot Butler, A. M	Butler College	Irvington, Ind.
L. J. Aldrich, D. D	Union Christian College	Merom, Ind.
C. W. Lewis, M. S., acting	Moores Hill College	Moores Hill, Ind.
Andrew Morrissey, C. S. C	University of Notre Dame	Notre Dame, Ind.
Joseph J. Mills, LL. D	Earlham College	Richmond, Ind.
Geo. Hindley, B. D	Ridgeville College	Ridgeville, Ind.
	St. Meinrad's College	St. Meinrad, Ind.
T. C. Reade, D. D	Taylor University	Upland, Ind.
S. B. McCormick, A. M., acting	Coe College	Cedar Rapids, Iowa.
J. Frederick Hirsch, A. M	Charles City College	Charles City, Iowa.
F. Richter	Wartburg College	Clinton, Iowa.
J. M. Littlejohn, D. D., Ph. D	Amity College	College Springs, Iowa.
Laur. Larsen	Luther College	Decorah, Iowa.
H. L. Stetson, D. D	Des Moines College	Des Moines, Iowa.
Wm. B. Craig, D. D	Drake University	Do.
D. E. Jenkins	Parsons College	Fairfield, Iowa.
John W. Bissell, D. D	Upper Iowa University	Fayette, Iowa.
George A. Gates, D. D	Iowa College	Grinnell, Iowa.
Hugh Robinson, A. M	Lenox College	Hopkinton, Iowa.
Fletcher Brown, A. M., B. D	Simpson College	Indianola, Iowa.
Charles A. Schaeffer, Ph. D	State University of Iowa	Iowa City, Iowa.
Friedrich Munz, A. M	German College	Mount Pleasant, Iowa.
C. L. Stafford, D. D	Iowa Wesleyan University	Do.
Wm. F. King, LL. D	Cornell College	Mount Vernon, Iowa
John M. Stoke	Oskaloosa College	Oskaloosa, Iowa.
A. Rosenberger, A. B., LL. B	Penn College	Do.
Arthur B. Chaffee, D. D	Central University of Iowa	Pella, Iowa.
W. S. Lewis	University of the Northwest	Sioux City, Iowa.
Harvey Hostetler	Buena Vista College	Storm Lake, Iowa.
R. C. Hughes, A. M	Tabor College	Tabor, Iowa.
L. Bookwalter, D. D	Western College	Toledo, Iowa.
Jacob A. Clutz, D. D	Midland College	Atchison, Kans.
Innocent Wolf, O. S. B., D. D	St. Benedict's College	Do.
L. H. Murlin, A. B., S. T. B	Baker University	Baldwin, Kans.
H. H. Vaughan, Ph. D	Soule College	Dodge City, Kans.
J. D. Hewitt, D. D	College of Emporia	Emporia, Kans.
William Boyle	Highland University	Highland, Kans.
B. F. Kizer	Campbell University	Holton, Kans.
F. H. Snow, Ph. D., LL. D	University of Kansas	Lawrence, Kans.
C. M. Brooke, A. M	Lane University	Lecompton, Kans.
C. A. Swensson, A. M	Bethany College	Lindsborg, Kans.
J. D. S. Riggs, Ph. D	Ottawa University	Ottawa, Kans.
Edward A. Higgins, S. J	St. Mary's College	St. Marys, Kans.
George J. Hagerty, A. M	Kansas Wesleyan University	Salina, Kans.
F. M. Spencer, D. D	Cooper Memorial College	Sterling, Kans.
Geo. M. Herrick, A. M	Washburn College	Topeka, Kans.
N. J. Morrison, D. D., LL. D	Fairmount College	Wichita, Kans.
A. W. Meyer	St. John's Lutheran College	Winfield, Kans.
Chester A. Place, A. M	Southwest Kansas College	Do.
James P. Faulkner, A. M	Union College	Barbourville, Ky.
Wm. G. Frost, Ph. D	Berea College	Berea, Ky.
Wm. A. Obenchain, A. M	Ogden College	Bowling Green, Ky.
	Centre College	Danville, Ky.
A. C. Davidson, D. D	Georgetown College	Georgetown, Ky.
H. J. Greenwell, A. M	Liberty College	Glasgow, Ky.
S. S. Woolwine	South Kentucky College	Hopkinsville, Ky.
Charles L. Loos	Kentucky University	Lexington, Ky.
James K. Patterson, Ph. D	State College of Kentucky	Do.
L. H. Blanton, D. D	Central University	Richmond, Ky.
W. S. Ryland, D. D	Bethel College	Russellville, Ky.
D. Fennessy	St. Mary's College	St. Marys, Ky.
E. H. Pearce, D. D	Kentucky Wesleyan College	Winchester, Ky.
Thos. D. Boyd	Louisiana State University	Baton Rouge, La.
M. Thouvenin, S. M	Jefferson College	Convent, La.
C. W. Carter, D. D	Centenary College of Louisiana	Jackson, La.
C. W. Tomkies	Keatchie College	Keatchie, La.
Henry C. Semple, S. J	College of the Immaculate Conception	New Orleans, La.
E. C. Mitchell, D. D	Leland University	Do.
L. G. Adkinson, D. D	New Orleans University	Do.
Oscar Atwood, A. M	Straight University	Do.
Wm. P. Johnston, LL. D	Tulane University	Do.

III.—College Presidents—Continued.

I.—*Colleges for males and coeducational colleges of liberal arts*—Contin

Name of president.	University or college.	Address
William De Witt Hyde, D. D.	Bowdoin College	Brunswick, Me.
George C. Chase, A. M.	Bates College	Lewiston, Me.
Nathaniel Butler, D. D.	Colby University	Waterville, Me.
Thomas Fell, Ph. D., LL. D.	St. John's College	Annapolis, Md.
D. C. Gilman, LL. D.	Johns Hopkins University	Baltimore, Md.
John A. Morgan, S. J.	Loyola College	Do.
Francis J. Wagner, D. D.	Morgan College	Do.
Charles W. Reid, Ph. D.	Washington College	Chestertown, M
Brother Maurice	Rock Hill College	Ellicott City, M
C. B. Schrantz, S. S.	St. Charles College	Do.
Wm. L. O'Hara	Mount St. Marys College	Mount St. Mary
William H. Purnell, LL. D.	New Windsor College	New Windsor,
Thomas H. Lewis, D. D.	Western Maryland College	Westminster, M
Merrill E. Gates, Ph. D., LL. D., L. H. D.	Amherst College	Amherst, Mass.
Timothy Brosnahan, S. J.	Boston College	Boston, Mass.
William F. Warren, LL. D.	Boston University	Do.
Charles W. Eliot, LL. D.	Harvard University	Cambridge, Ma
Samuel H. Lee	French American College	Springfield, Ma
Elmer H. Capen, D. D.	Tufts College	Tufts College, M
F. Carter, Ph. D., LL. D.	Williams College	Williamstown,
G. Stanley Hall, Ph. D., LL. D.	Clark University	Worcester, Mas
John F. Lehy, S. J.	College of the Holy Cross	Do.
Denison C. Thomas, Ph. D.	Adrian College	Adrian, Mich.
John P. Ashley, Ph. D.	Albion College	Albion, Mich.
August F. Bruske, D. D.	Alma College	Alma, Mich.
James B. Angell, LL. D.	University of Michigan	Ann Arbor, Mic
E. A. Sutherland	Battle Creek College	Battlecreek, Mi
James G. Rodger, Ph. D.	Benzonia College	Benzonia, Mich.
H. A. Schapman, S. J.	Detroit College	Detroit, Mich.
George F. Mosher, LL. D.	Hillsdale College	Hillsdale, Mich.
Gerrit J. Kollen, A. M.	Hope College	Holland, Mich.
A. G. Slocum, LL. D.	Kalamazoo College	Kalamazoo, Mic
W. G. Sperry, D. D.	Olivet College	Olivet, Mich.
Peter Engel, O. S. B., Ph. D.	St. John's University	Collegeville, Mi
George H. Bridgman, D. D.	Hamline University	Hamline, Minn.
Georg Sverdrup	Augsburg Seminary	Minneapolis, Mi
Cyrus Northrop, LL. D.	University of Minnesota	Do.
James W. Strong, D. D.	Carleton College	Northfield, Min
Thorbjörn N. Mohn	St. Olaf College	Do.
James Wallace, Ph. D.	Macalester College	St. Paul, Minn.
Matthias Wahlstrom, A. M.	Gustavus Adolphus College	St. Peter, Minn.
R. M. Lawrence, A. M.	Parker College	Winnebago City
J. W. Provine, Ph. D.	Mississippi College	Clinton, Miss.
C. A. Huddleston, A. M.	University Institute	Daloville, Miss.
Wm. W. Foster, jr., D. D.	Rust University	Holly Springs,
W. B. Murrah, D. D.	Millsaps College	Jackson, Miss.
Robert B. Fulton, A. M.	University of Mississippi	University, Mis
David R. Dungan, LL. D.	Central Christian College	Albany, Mo.
W. H. Pritchett, A. M.	Northwest Missouri College	Do.
James Rice, A. M.	Southwest Baptist College	Bolivar, Mo.
R. E. Downing, B. Sur.	Pike College	Bowling Green,
Chas. F. Spray, A. M.	Missouri Wesleyan College	Cameron, Mo.
Clinton Lockhart, Ph. D.	Christian University	Canton, Mo.
J. A. Linn, C. M.	St. Vincent's College	Cape Girardeau
Richard H. Jesse, LL. D.	University of the State of Missouri	Columbia, Mo.
Geo. W. Mitchell	Grand River Christian Union College	Edinburg, Mo.
E. B. Craighead, A. M.	Central College	Fayette, Mo.
Edward C. Gordon, D. D.	Westminster College	Fulton, Mo.
Chas. C. Hemenway	Pritchett College	Glasgow, Mo.
Jere T. Muir	LaGrange College	Lagrange, Mo.
J. P. Greene, D. D., LL. D.	William Jewell College	Liberty, Mo.
Wm. H. Black, D. D.	Missouri Valley College	Marshall, Mo.
W. H. Winton	Morrisville College	Morrisville, Mo.
J. C. Shelton	Scarritt Collegiate Institute	Neosho, Mo.
L. M. McAfee	Park College	Parkville, Mo.
C. L. Wolcott	St. Charles College	St. Charles, Mo.
Brother Paulian, F. S. C.	College of the Christian Brothers	St. Louis, Mo.
Joseph Grimmelsman, S. J.	St. Louis University	Do.
Winfield S. Chaplin, LL. D.	Washington University	Do.
Homer T. Fuller, Ph. D.	Drury College	Springfield, Mo.
J. A. Thompson, A. M.	Tarkio College	Tarkio, Mo.
C. J. Kephart, D. D.	Avalon College	Trenton, Mo.
Geo. B. Addicks, A. M.	Central Wesleyan College	Warrenton, Mo
A. B. Martin, A. M.	College of Montana	Deerlodge, Mon
J. C. Templeton	Montana Wesleyan University	Helena, Mont.
Oscar J. Craig	University of Montana	Missoula, Mont.
David R. Kerr, Ph. D., D. D.	University of Omaha	Bellevue, Nebr.
W. P. Aylsworth, A. M.	Cotner University	Bethany, Nebr.
N. W. Kauble	Union College	College View, N

III.—College Presidents—Continued.

1.—*Colleges for males and coeducational colleges of liberal arts*—Continued.

Name of president.	University or college.	Address.
David B. Perry, A. M	Doane College	Crete, Nebr.
C. W. Hemry, A. M	Fairfield College	Fairfield, Nebr.
S. G. Pattison, A. M	Hastings College	Hastings, Nebr.
Geo. E. MacLean, LL. D	University of Nebraska	Lincoln, Nebr.
Oscar F. Davis	Gates College	Neligh, Nebr.
John Pahls, S. J	Creighton University	Omaha, Nebr.
C. M. Elliuwood	Nebraska Wesleyan University	University Place, Nebr.
W. S. Reese	York College	York, Nebr.
Joseph E. Stubbs, D. D	State University of Nevada	Reno, Nev.
W. J. Tucker, D. D., LL. D	Dartmouth College	Hanover, N. H.
Hilary Pfraengle, O. S. B	St. Benedict's College	Newark, N. J.
Austin Scott, Ph. D., LL. D	Rutgers College	New Brunswick, N. J.
F. L. Patton, D. D., LL. D	Princeton University	Princeton, N. J.
Joseph J. Synnott	Seton Hall College	South Orange, N. J.
B. C. Davis, A. M	Alfred University	Alfred, N. Y.
Joseph F. Butler, O. S. F	St. Bonaventure's College	Allegany, N. Y.
R. B. Fairbairn, D. D., LL. D	St. Stephen's College	Annandale, N. Y.
D. H. Cochran, Ph. D., LL. D	Polytechnic Institute of Brooklyn	Brooklyn, N. Y.
Brother Jerome, O. S. F	St. Francis College	Do.
J. A. Hartnett, C. M	St. John's College	Do.
James A. Rockliff, S. J	Canisius College	Buffalo, N. Y.
John C. Lee, Ph. D., D. D	St. Lawrence University	Canton, N. Y.
M. Woolsey Stryker, D. D	Hamilton College	Clinton, N. Y.
Robert E. Jones	Hobart College	Geneva, N. Y.
	Colgate University	Hamilton, N. Y.
J. G. Schurman, Sc. D., LL. D	Cornell University	Ithaca, N. Y.
Thomas E. Murphy, S. J	College of St. Francis Xavier	New York, N. Y.
Alexander S. Webb, LL. D	College of the City of New York	Do.
Seth Low, LL. D	Columbia University	Do.
Brother Justin, A. M	Manhattan College	Do.
T. J. Campbell, S. J	St. John's College	Do.
H. M. MacCracken, D. D., LL. D	New York University	Do.
P. S. MacHale, C. M	Niagara University	Niagara University, N. Y.
S. A. Lattimore, Ph. D., LL. D	University of Rochester	Rochester, N. Y.
A. V. V. Raymond, D. D	Union College	Schenectady, N. Y.
James R. Day, D. D	Syracuse University	Syracuse, N. Y.
Leo Haid, D. D., O. S. B	St. Mary's College	Belmont, N. C.
E. A. Alderman, D. C. L	University of North Carolina	Chapel Hill, N. C.
D. J. Sanders, D. D	Biddle University	Charlotte, N. C.
J. B. Shearer, D. D., LL. D	Davidson College	Davidson, N. C.
John C. Kilgo, D. D	Trinity College	Durham, N. C.
W. W. Staley, D. D	Elon College	Elon College, N. C.
L. Lyndon Hobbs, A. M	Guilford College	Guilford College, N. C.
Robert A. Yoder, A. M	Lenoir College	Hickory, N. C.
R. L. Moore	Mars Hill College	Mars Hill, N. C.
M. G. G. Scherer, A. M	North Carolina College	Mount Pleasant, N. C.
J. C. Clapp, D. D	Catawba College	Newton, N. C.
Chas. F. Meserve, A. M	Shaw University	Raleigh, N. C.
W. E. Abernethy	Rutherford College	Rutherford College, N. C.
William H. Goler, D. D	Livingstone College	Salisbury, N. C.
C. E. Taylor, D. D., Litt. B	Wake Forest College	Wake Forest, N. C.
M. A. Yost, A. M	Weaverville College	Weaverville, N. C.
Henry C. Simmons	Fargo College	Fargo, N. Dak.
W. Merrifield, A. M	University of North Dakota	University, N. Dak.
M. V. B. Knox, D. D	Red River Valley University	Wahpeton, N. Dak.
Ira A. Priest	Buchtel College	Akron, Ohio.
Tamerlane P. Marsh, D. D	Mount Union College	Alliance, Ohio.
Isaac Crook, D. D	Ohio University	Athens, Ohio.
Millard F. Warner, A. M	Baldwin University	Berea, Ohio.
C. Riemenschneider, Ph. D	German Wallace College	Do.
David McKinney	Cedarville College	Cedarville, Ohio.
James Rogers, C. S. C	St. Joseph's College	Cincinnati, Ohio.
Michael J. O'Connor, S. J	St. Xavier College	Do.
P. V. N. Myers	University of Cincinnati	Do.
H. J. Ruetenik, D. D	Calvin College	Cleveland, Ohio.
Godfrey J. Schulte, S. J	St. Ignatius College	Do.
Chas. F. Thwing, D. D	Western Reserve University	Do.
F. W. Stellhorn	Capital University	Columbus, Ohio.
James H. Canfield, LL. D	Ohio State University	Do.
John R. H. Latchaw, D. D	Defiance College	Defiance, Ohio.
James W. Bashford, Ph. D	Ohio Wesleyan University	Delaware, Ohio.
C. Manchester, A. M	Findlay College	Findlay, Ohio.
Wm. F. Peirce, L. H. D	Kenyon College	Gambier, Ohio.
D. B. Purinton, LL. D	Denison University	Granville, Ohio.
Ely V. Zollars, LL. D	Hiram College	Hiram, Ohio.
Carl Ackerman	Lima College	Lima, Ohio.
J. H. Chamberlin, Litt. D., dean	Marietta College	Marietta, Ohio.
W. A. Williams, D. D	Franklin College	New Athens, Ohio.
Jesse Johnson	Muskingum College	New Concord, Ohio.
	Oberlin College	Oberlin, Ohio.

III.—College Presidents—Continued.

I.—*Colleges for males and coeducational colleges of liberal arts*—Contin

Name of president.	University or college.	Address
Wm. O. Thompson, D. D	Miami University	Oxford, Ohio.
Geo. W. MacMillan, Ph. D., D. D.	Richmond College	Richmond, Ohi
John M. Davis, Ph. D	Rio Grande College	Rio Grande, Oh
W. G. Compher, Ph. D	Scio College	Scio, Ohio.
Samuel A. Ort, D. D	Wittenberg College	Springfield, Oh
John A. Peters, D. D	Heidelberg University	Tiffin, Ohio.
Thomas J. Sanders, Ph. D	Otterbein University	Westerville, O
S. T. Mitchell, LL. D	Wilberforce University	Wilberforce, O
James B. Unthank, M. S	Wilmington College	Wilmington, O
S. F. Scovel, D. D	University of Wooster	Wooster, Ohio.
Daniel A. Long, D. D., LL. D	Antioch College	Yellow Springs
D. R. Boyd, A. M	University of Oklahoma	Norman, Okla.
Chas. H. Chapman, Ph. D	University of Oregon	Eugene, Oreg.
Thomas McClelland, D. D	Pacific University	Forest Grove,
C. C. Poling, Ph. B	Lafayette Seminary	Lafayette, Ore
H. L. Boardman	McMinnville College	McMinnville, O
Thomas Newlin	Pacific College	Newberg, Oreg
J. M. C. Miller, M. S	Philomath College	Philomath, Ore
Willis C. Hawley, A. M	Willamette University	Salem, Oreg.
Thomas Van Scoy, D. D	Portland University	University Par
W. J. Holland, Ph. D., D. D	Western University of Pennsylvania	Allegheny, Pa.
Theodore L. Seip, D. D	Muhlenberg College	Allentown, Pa.
H. U. Roop, Ph. D	Lebanon Valley College	Annville, Pa.
Leander Schnerr	St. Vincent College	Beatty, Pa.
W. P. Johnston, A. M	Geneva College	Beaver Falls, P
Aug. Schultz, D. D	Moravian College	Bethlehem, Pa.
George E. Reed, D. D., LL. D	Dickinson College	Carlisle, Pa.
C. E. Hyatt, C. E	Pennsylvania Military College	Chester, Pa.
Henry T. Spangler, D. D	Ursinus College	Collegeville, Pa
E. D. Warfield, LL. D	Lafayette College	Easton, Pa.
H. W. McKnight, D. D., LL. D	Pennsylvania College	Gettysburg, Pa
Theo. B. Roth, D. D	Thiel College	Greenville, Pa.
Isaac C. Ketler, Ph. D	Grove City College	Grove City, Pa.
Isaac Sharpless, Sc. D., LL. D	Haverford College	Haverford, Pa.
John S. Stahr, Ph. D., D. D	Franklin and Marshall College	Lancaster, Pa.
John H. Harris, Ph. D	Bucknell University	Lewisburg, Pa.
Isaac N. Rendall, D. D	Lincoln University	Lincoln Univer
Wm. H. Crawford, D. D	Allegheny College	Meadville, Pa.
Aaron E. Gobble, A. M	Central Pennsylvania College	New Berlin, Pa
R. G. Ferguson, D. D	Westminster College	New Wilmingt
R. E. Thompson, D. D	Central High School	Philadelphia, P
Brother Isidore	La Salle College	Do.
Charles C. Harrison, LL. D	University of Pennsylvania	Do.
Edwin L. York, Ph. D	Duquesne College	Pittsburg, Pa.
John T. Murphy, C. S. Sp	Holy Ghost College	Do.
Thomas M. Drown, M. D	Lehigh University	South Bethlehe
G. W. Atherton, LL. D	Pennsylvania State College	State College, P
Charles De Garmo, Ph. D	Swarthmore College	Swarthmore, P
Laurence A. Delurey, O. S. A	Villanova College	Villanova, Pa.
M. E. Hess	Volant College	Volant, Pa.
James D. Moffat, D. D	Washington and Jefferson College	Washington, Pa
E. B. Andrews, D. D., LL. D	Brown University	Providence, R.
Harrison Randolph, A. M	College of Charleston	Charleston, S.
A. E. Spencer, A. M	Presbyterian College of South Carolina.	Clinton, S. C.
J. W. Morris	Allen University	Columbia, S. C.
F. C. Woodward, Litt. D	South Carolina College	Columbia, S. C.
W. M. Grier, D. D., LL. D	Erskine College	Due West, S. C.
A. P. Montague, Ph. D	Furman University	Greenville, S. C
Geo. B. Cromer, A. M	Newberry College	Newberry, S. C
L. M. Dunton, D. D	Claflin University	Orangeburg, S.
James H. Carlisle, LL. D	Wofford College	Spartanburg, S
Wm. M. Blackburn, D. D	Pierre University	East Pierre, S.
Elmer E. Lymer	Black Hills College	Hot Springs, S.
W. I. Graham, A. M	Dakota University	Mitchell, S. Da
I. P. Patch	Redfield College	Redfield, S. Da
Joseph W. Mauck, A. M	University of South Dakota	Vermilion, S. D
H. K. Warren	Yankton College	Yankton, S. Da
J. Albert Wallace, D. D	King College	Bristol, Tenn.
Isaac W. Joyce, D. D., LL. D	U. S. Grant University	Chattanooga, T
George Summey, D. D	Southwestern Presbyterian University.	Clarksville, Ten
J. F. Spence, S. T. D., LL. D	American Temperance University	Harriman, Ten
S. G. Gilbreath	Hiwassee College	Hiwassee Colle
G. M. Savage, LL. D	Southwestern Baptist University	Jackson, Tenn.
J. S. McCulloch, D. D	Knoxville College	Knoxville, Ten
Chas. W. Dabney, jr., Ph. D., LL. D.	University of Tennessee	Do.
N. Green, LL. D	Cumberland University	Lebanon, Tenn.

III.—College Presidents—Continued.

I.—*Colleges for males and coeducational colleges of liberal arts*—Continued.

Name of president.	University or college.	Address.
J. L. Dickens, Ph. D., LL. D.	Bethel College	McKenzie, Tenn.
S. W. Boardman, LL. D.	Maryville College	Maryville, Tenn.
Brother Maurelian	Christian Brothers' College	Memphis, Tenn.
J. Hopwood, A. M.	Milligan College	Milligan, Tenn.
J. T. Henderson, A. M.	Carson and Newman College	Mossy Creek, Tenn.
J. Braden, D. D.	Central Tennessee College	Nashville, Tenn.
E. M. Cravath, D. D.	Fisk University	Do.
Owen James, D. D.	Roger Williams University	Do.
Wm. H. Payne, LL. D.	University of Nashville	Do.
James H. Kirkland, Ph. D.	Vanderbilt University	Do.
B. Lawton Wiggins, A. M.	University of the South	Sewanee, Tenn.
W. N. Billingsley, A. M.	Burritt College	Spencer, Tenn.
J. L. Bachman, A. M.	Sweetwater College	Sweetwater, Tenn.
Jere Moore, D. D.	Greeneville and Tusculum College	Tusculum, Tenn.
James T. Cooter, A. M.	Washington College	Washington College, Tenn.
P. P. Klein, C. S. C.	St. Edward's College	Austin, Tex.
Geo. T. Winston, LL. D.	University of Texas	Do.
J. D. Robnett, D. D.	Howard Payne College	Brownwood, Tex.
T. H. Bridges	Henry College	Campbell, Tex.
Oscar L. Fisher, D. D.	Fort Worth University	Fort Worth, Tex.
J. B. Quinlan, S. J.	St. Mary's University	Galveston, Tex.
John H. McLean, D. D.	Southwestern University	Georgetown, Tex.
M. W. Dogan, A. M.	Wiley University	Marshall, Tex.
John Wolf	St. Louis College	San Antonio, Tex.
Thornton R. Sampson	Austin College	Sherman, Tex.
L. A. Johnson, Ph. D.	Trinity University	Tehuacana, Tex.
Addison Clark, LL. D.	Add-Ran Christian University	Waco, Tex.
J. C. Lattimore, M. S.	Baylor University	Do.
I. M. Burgan, D. D.	Paul Quinn College	Do.
Wm. J. Kerr	Brigham Young College	Logan, Utah.
Joseph T. Kingsbury, Ph. D.	University of Utah	Salt Lake City, Utah.
Matthew H. Buckham, D. D.	University of Vermont	Burlington, Vt.
Ezra Brainerd, LL. D.	Middlebury College	Middlebury, Vt.
Wm. W. Smith, LL. D.	Randolph-Macon College	Ashland, Va.
W. B. Yount	Bridgewater College	Bridgewater, Va.
P. B. Barringer, M. D.	University of Virginia	Charlottesville, Va.
R. G. Waterhouse, D. D.	Emory and Henry College	Emory, Va.
A. P. Saunders, D. D.	Fredericksburg College	Fredericksburg, Va.
Richard McIlwaine, D. D.	Hampden-Sidney College	Hampden-Sidney, Va.
William L. Wilson, LL. D.	Washington and Lee University	Lexington, Va.
F. W. Boatwright, A. M.	Richmond College	Richmond, Va.
Julius D. Dreher, Ph. D.	Roanoke College	Salem, Va.
L. G. Tyler, LL. D.	College of William and Mary	Williamsburg, Va.
A. C. Jones	Vashon College	Burton, Wash.
F. N. English, A. M.	Colfax College	Colfax, Wash.
E. J. Hibbard	Walla Walla College	College Place, Wash.
William F. Edwards	University of Washington	Seattle, Wash.
James Rebmann, S. J.	Gonzaga College	Spokane, Wash.
Calvin W. Stewart, D. D.	Whitworth College	Sumner, Wash.
C. R. Thoburn	Puget Sound University	Tacoma, Wash.
	St. James College	Vancouver, Wash.
S. B. L. Penrose	Whitman College	Walla Walla, Wash.
T. C. Atkeson, Ph. D.	Barboursville College	Barboursville, W. Va.
B. C. Hagerman, A. M.	Bethany College	Bethany, W. Va.
Jerome H. Raymond, Ph. D.	West Virginia University	Morgantown, W. Va.
Samuel Plantz, Ph. D., D. D.	Lawrence University	Appleton, Wis.
E. D. Eaton, D. D., LL. D.	Beloit College	Beloit, Wis.
H. A. Muehlmeier, D. D.	Mission House	Franklin, Wis.
Chas. K. Adams, LL. D.	University of Wisconsin	Madison, Wis.
Wm. C. Whitford, D. D.	Milton College	Milton, Wis.
Leopold Bushart, S. J.	Marquette College	Milwaukee, Wis.
Rufus C. Flagg, D. D.	Ripon College	Ripon, Wis.
Joseph Rainer	Seminary of St. Francis of Sales	St. Francis, Wis.
A. F. Ernst	Northwestern University	Watertown, Wis.
Frank P. Graves, Ph. D.	University of Wyoming	Laramie, Wyo.

II.—*Colleges for women.*

Z. A. Parker	Athens Female College	Athens, Ala.
Henry A. Moody, M. D.	Bailey Springs University	Bailey Springs, Ala.
J. B. Cumming	East Lake Athenæum	Eastlake, Ala.
T. J. Simmons, A. M.	Union Female College	Eufaula, Ala.
A. H. Todd	Synodical Female College	Florence, Ala.
S. W. Averett, LL. D.	Judson Female Institute	Marion, Ala.
Jas. D. Wade, A. M.	Marion Female Seminary	Do.
Geo. R. McNeill, Ph. D.	Isbell College	Talladega, Ala.

III.—COLLEGE PRESIDENTS—Continued.

II.—*Colleges for women*—Continued.

Name of president.	University or college.	Address.
E. H. Murfee	Central Female College	Tuscaloosa, Ala.
John D. Simpson	Tuscaloosa Female College	Do.
John Massey, LL. D	Alabama Conference Female College	Tuskegee, Ala.
J. G. Lile	Central Baptist College	Conway, Ark.
Mrs. C. T. Mills	Mills College	Mills College, Cal.
Sister Mary Bernardine	College of Notre Dame	San Jose, Cal.
Mrs. M. A. Lipscomb	Lucy Cobb Institute	Athens, Ga.
Chas. C. Cox, A. M	Southern Female College	College Park, Ga.
Homer Bush, A. M	Andrew Female College	Cuthbert, Ga.
G. J. Orr	Dalton Female College	Dalton, Ga.
M. H. Lane	Monroe Female College	Forsyth, Ga.
A. W. Van Hoose	Georgia Female Seminary	Gainesville, Ga.
Rufus W. Smith, A. M	Lagrange Female College	Lagrange, Ga.
G. A. Nunnally	Southern Female College	Do.
J. D. Hammond, D. D	Wesleyan Female College	Macon, Ga.
J. Harris Chappell	Georgia Normal and Industrial College.	Milledgeville, Ga.
A. J. Battle, D. D., LL. D	Shorter College	Rome, Ga.
John E. Baker	Young Female College	Thomasville, Ga.
Joseph R. Harker, Ph. D	Illinois Female College	Jacksonville, Ill.
E. F. Bullard, A. M	Jacksonville Female Academy	Do.
C. W. Leffingwell, D. D	St. Mary's School	Knoxville, Ill.
Phebe T. Sutliff, A. M	Rockford College	Rockford, Ill.
John M. Duncan, A. M	Coates College	Terre Haute, Ind.
Wm. Bishop, D. D	College for Young Ladies	Oswego, Kans.
F. R. Millspaugh, D. D	College of the Sisters of Bethany	Topeka, Kans.
Benj. F. Cabell	Potter College	Bowling Green, Ky.
Miss C. A. Campbell	Caldwell College	Danville, Ky.
Edmund Harrison, A. M	Bethel Female College	Hopkinsville, Ky.
J. B. Skinner	Hamilton Female College	Lexington, Ky.
H. B. McClellan, A. M	Sayre Female Institute	Do.
C. C. Fisher, A. M	Millersburg Female College	Millersburg, Ky.
Mrs. B. W. Vineyard	Jessamine Female Institute	Nicholasville, Ky.
A. C. Goodwin	Owensboro Female College	Owensboro, Ky.
G. B. Perry	Kentucky College for Young Ladies	Pewee Valley, Ky.
A. G. Murphey	Logan Female College	Russellville, Ky.
William Shelton	Stanford Female College	Stanford, Ky.
George J. Ramsey, A. M	Silliman Female Institute	Clinton, La.
T. S. Sligh, A. M	Mansfield Female College	Mansfield, La.
S. Decatur Lucas	Minden Female College	Minden, La.
H. S. Whitman, A. M	Westbrook Seminary	Deering, Me.
	Maine Wesleyan Seminary and Female College.	Kents Hill, Me.
John F. Goucher, D. D	Woman's College of Baltimore	Baltimore, Md.
J. H. Apple, A. M	Woman's College	Frederick, Md.
C. L. Keedy, A. M., M. D	Keo Mar College	Hagerstown, Md.
J. H. Turner, A. M	Maryland College for Young Ladies	Lutherville, Md.
C. C. Bragdon, A. M	Lasell Seminary for Young Women	Auburndale, Mass.
Miss Agnes Irwin, dean	Radcliffe College	Cambridge, Mass.
L. Clark Seelye, D. D	Smith College	Northampton, Mass.
Mrs. E. S. Mead, A. M	Mount Holyoke College	South Hadley, Mass.
Mrs. Julia J. Irvine	Wellesley College	Wellesley, Mass.
Ella Young	Albert Lea College	Albert Lea, Minn.
W. T. Lowrey, D. D	Blue Mountain Female College	Blue Mountain, Miss.
John W. Chambers	Whitworth Female College	Brookhaven, Miss.
Franklin L. Riley	Hillman College	Clinton, Miss.
	Industrial Institute and College	Columbus, Miss.
L. T. Fitzhugh	Belhaven College for Young Ladies	Jackson, Miss.
C. H. Otken, LL. D	McComb Female Institute	McComb, Miss.
J. W. Beeson, A. M	East Mississippi Female College	Meridian, Miss.
L. M. Stone, D. D	Stone College for Young Ladies	Do.
A. S. Maddox	Union Female College	Oxford, Miss.
J. A. Monroe, A. M	Chickasaw Female College	Pontotoc, Miss.
Mrs. M. H. Meek	Port Gibson Female College	Port Gibson, Miss.
Mrs. Eva B. Wilkinson	Hamilton College	Water Valley, Miss.
Mrs. W. T. Moore	Christian Female College	Columbia, Mo.
S. F. Taylor, D. D	Stephens Female College	Do.
Hiram D. Groves	Howard Payne College	Fayette, Mo.
T. P. Walton	Synodical Female College	Fulton, Mo.
George F. Ayres	Presbyterian College	Independence, Mo.
B. T. Blewett, LL. D	St. Louis Seminary	Jennings, Mo.
W. H. Buck	Baptist Female College	Lexington, Mo.
Archibald A. Jones	Central Female College	Do.
H. B. Barks	Elizabeth Aull Female Seminary	Do.
C. M. Williams	Liberty College for Young Ladies	Liberty, Mo.
J. W. Million, A. M	Hardin College	Mexico, Mo.
W. S. Knight, D. D	Lindenwood Female College	St. Charles, Mo.
Geo. L. Plimpton	New Hampshire Conference Seminary and Female College.	Tilton, N. H.
J. W. Blaisdell, D. D	Bordentown Female College	Bordentown, N. J.

III.—COLLEGE PRESIDENTS—Continued.

II.—*Colleges for women*—Continued.

Name of president.	University or college.	Address.
.....	Evelyn College	Princeton, N. J.
William E. Waters, Ph. D	Wells College	Aurora, N. Y.
Truman J. Backus, LL. D	Packer Collegiate Institute	Brooklyn, N. Y.
A. C. McKenzie, D. D	Elmira College	Elmira, N. Y.
Emily James Smith, dean	Barnard College	New York, N. Y.
James M. Taylor, D. D	Vassar College	Poughkeepsie, N. Y.
Archibald A. Jones	Asheville Female College	Asheville, N. C.
S. A. Wolff	Gaston College	Dallas, N. C.
Dred Peacock, A. M	Greensboro Female College	Greensboro, N. C.
S. P. Hatton, A. M	Claremont Female College	Hickory, N. C.
M. S. Davis, A. M	Louisburg Female College	Louisburg, N. C.
W. O. Petty	Chowan Baptist Female Institute	Murfreesboro, N. C.
F. P. Hobgood	Oxford Female Seminary	Oxford, N. C.
John H. Clewell	Salem Female Academy	Salem, N. C.
G. K. Bartholomew, A. M., Ph. D.	Bartholomew English and Classical School.	Cincinnati, Ohio.
L. D. Potter, D. D	Glendale Female College	Glendale, Ohio.
Clara Sheldon	Granville Female College	Granville, Ohio.
Faye Walker, D. D	Oxford College	Oxford, Ohio.
Lella S. McKee, Ph. D	Western College	Do.
Miss Mary Evans	Lake Erie Seminary	Painesville, Ohio.
J. W. Knappenberger, A. M	Allentown College for Women	Allentown, Pa.
J. Max Hark, D. D	Moravian Seminary for Young Ladies	Bethlehem, Pa.
M. Carey Thomas, Ph. D	Bryn Mawr College	Bryn Mawr, Pa.
Wallace P. Dick	Metzger College	Carlisle, Pa.
Samuel A. Martin	Wilson College	Chambersburg, Pa.
C. L. Moench	Linden Hall Seminary	Lititz, Pa.
E. E. Campbell, A. M	Irving Female College	Mechanicsburg, Pa.
Frances E. Bennett	Ogontz School	Ogontz School, Pa.
R. Jennie DeVere	Pennsylvania College for Women	Pittsburg, Pa.
J. A. Rice	Columbia Female College	Columbia, S. C.
W. R. Atkinson, D. D	Presbyterian College for Women	Do.
C. E. Todd	Due West Female College	Due West, S. C.
Jno. R. Mack, A. M	Cooper-Limestone Institute	Gaffney City, S. C.
A. S. Townes	Greenville College for Women	Greenville, S. C.
M. M. Riley	Greenville Female College	Do.
B. F. Wilson	Converse College	Spartanburg, S. C.
B. G. Clifford	Clifford Seminary	Union, S. C.
S. Lander, A. M	Williamston Female College	Williamston, S. C.
D. S. Hearon, D. D	Sullins College	Bristol, Tenn.
C. A. Folk, A. B	Brownsville Female College	Brownsville, Tenn.
Robert D. Smith, A. M	Columbia Athenæum	Columbia, Tenn.
T. E. Allen	Tennessee Female College	Franklin, Tenn.
J. M. Hubbard	Howard Female College	Gallatin, Tenn.
Howard W. Key, Ph. D	Memphis Conference Female Institute	Jackson, Tenn.
Miss V. O. Wardlaw, A. M	Soule Female College	Murfreesboro, Tenn.
Geo. W. F. Price, D. D	Nashville College for Young Ladies	Nashville, Tenn.
J. D. Blanton	Ward Seminary	Do.
S. N. Barker	Martin Female College	Pulaski, Tenn.
Wm. M. Graybill, A. M	Synodical Female College	Rogersville, Tenn.
Z. C. Graves, LL. D	Mary Sharp College	Winchester, Tenn.
Charles Carlton	Carlton College	Bonham, Tex.
W. A. Wilson, A. M	Baylor Female College	Belton, Tex.
L. F. Smith	Chappell Hill Female College	Chappell Hill, Tex.
W. M. Dyer	Martha Washington College	Abingdon, Va.
J. D. Anderson, A. M	Stonewall Jackson Institute	Do.
Samuel D. Jones, B. L	Southwest Virginia Institute	Bristol, Va.
J. I. Miller	Young Ladies' College	Buena Vista, Va.
L. H. Shuck, D. D	Albemarle Female Institute	Charlottesville, Va.
C. F. James, D. D	Roanoke Female College	Danville, Va.
Chas. L. Cocke	Hollins Institute	Hollins, Va.
W. W. Smith, LL. D	Randolph-Macon Woman's College	Lynchburg, Va.
J. J. Scherer, A. M	Marion Female College	Marion, Va.
A. P. Piper	Norfolk College for Young Ladies	Norfolk, Va.
Arthur K. Davis, A. M	Southern Female College	Petersburg, Va.
.....	Staunton Female Seminary	Staunton, Va.
Mrs. J. E. B. Stuart	Virginia Female Institute	Do.
A. M. Smith	Episcopal Female Institute	Winchester, Va.
John P. Hyde, D. D., LL. D	Valley Female College	Do.
Mrs. H. L. Field	Parkersburg Seminary	Parkersburg, W. Va.
Ella C. Sabin	Milwaukee-Downer College	Milwaukee, Wis.

III.—College Presidents—Continued.

III.—*Schools of technology.*

Name of president.	Name of institution.	Address
Wm. Le Roy Broun, LL. D	Alabama Agricultural and Mechanical College.	Auburn, Ala.
Alston Ellis, LL. D	Colorado Agricultural College	Fort Collins, Co
Regis Chauvenet, A. M., B. S	State School of Mines	Golden, Colo.
B. F. Koons	Storrs Agricultural College	Storrs, Conn.
Wm. C. Jason, A. M	State College for Colored Students	Dover, Del.
L. D. Bliss	Bliss School of Electricity	Washington, D.
Oscar Clute, LL. D	Florida State Agricultural College	Lake City, Fla.
Lyman Hall	State School of Technology	Atlanta, Ga.
F. W. Gunsaulus, D. D	Armour Institute	Chicago, Ill.
J. H. Smart, LL. D	Purdue University	Lafayette, Ind.
Carl L. Mees, Ph. D	Rose Polytechnic Institute	Terre Haute, In
W. M. Beardshear, LL. D	Iowa Agricultural College	Ames, Iowa.
Thomas E. Will, A. M	Kansas Agricultural College	Manhattan, Kar
A. W. Harris, Ph. D	University of Maine	Orono, Me.
P. H. Cooper, U. S. N	United States Naval Academy	Annapolis, Md.
R. W. Silvester	Maryland Agricultural College	College Park, M
H. H. Goodell, LL. D	Massachusetts Agricultural College	Amherst, Mass.
J. M. Crafts, B. S	Massachusetts Institute of Technology.	Boston, Mass.
T. C. Mendenhall, LL. D	Worcester Polytechnic Institute	Worcester, Mas
J. L. Snyder, Ph. D	Michigan Agricultural College	Agricultural C Mich.
M. E. Wadsworth, Ph. D	Michigan College of Mines	Houghton, Mich
S. D. Lee, LL. D	Mississippi Agricultural and Mechanical College.	Agricultural C Miss.
E. H. Triplett	Alcorn Agricultural and Mechanical College.	Westside, Miss.
James Reid, A. B	Montana College of Agriculture and Mechanic Arts.	Bozeman, Mont.
C. S. Murkland, Ph. D	New Hampshire College of Agriculture and Mechanic Arts.	Durham, N. H.
Henry Morton, Ph. D	Stevens Institute of Technology	Hoboken, N. J.
C. A. Colton, E. M	Newark Technical School	Newark, N. J.
C. T. Jordan, A. M	New Mexico College of Agriculture and Mechanic Arts.	Mesilla Park, N.
John H. Peck, LL. D	Rensselaer Polytechnic Institute	Troy, N. Y.
O. H. Ernst, U. S. A	United States Military Academy	West Point, N.
James B. Dudley	Agricultural and Mechanical College for the Colored Race.	Greensboro, N.
A. Q. Holladay	North Carolina College of Agriculture and Mechanic Arts.	Raleigh, N. C.
J. H. Worst	North Dakota Agricultural College	Fargo, N. Dak.
Cady Staly, LL. D	Case School of Applied Science	Cleveland, Ohio.
Geo. E. Morrow, A. M	Oklahoma Agricultural and Mechanical College.	Stillwater, Okla
Thomas M. Gatch, Ph. D	Oregon Agricultural College	Corvallis, Oreg.
John H. Washburn, Ph. D	Rhode Island College of Agriculture and Mechanic Arts.	Kingston, R. I.
Asbury Coward	South Carolina Military Academy	Charleston, S. C
Henry S. Hartzog, B. S	Clemson Agricultural College	Clemson College
John W. Heston, Ph. D., LL. D	South Dakota Agricultural College	Brookings, S. D.
V. T. McGillycuddy	State School of Mines	Rapid City, S. D
	Agricultural and Mechanical College of Texas.	College Station,
Joseph M. Tanner	Agricultural College of Utah	Logan, Utah.
Allan D. Brown, U. S. N	Norwich University	Northfield, Vt.
J. M. McBryde, LL. D	Virginia Agricultural and Mechanical College.	Blacksburg, Va.
Scott Shipp, LL. D	Virginia Military Institute	Lexington, Va.
E. A. Bryan, A. M	Washington Agricultural College and School of Science.	Pullman, Wash.

IV.—Principals of Normal Schools.

Public normal schools.

Location.	Name of institution.	Principal.
ALABAMA.		
Florence	State Normal College	James K. Powers.
Jacksonville	do	Jacob Forney.
Livingston	Alabama Normal College for Girls	Miss Julia S. Tutwiler.
Montgomery	Montgomery Normal School	
Normal	State Colored Normal and Industrial School.	W. H. Councill.
Troy	State Normal College	Edwin R. Eldridge.
ARIZONA.		
Tempe	Territorial Normal School of Arizona	James McNaughton.
ARKANSAS.		
Paris	Paris Academy	G. S. Minmier.
Pine Bluff	Branch Normal College	J. C. Corbin.
CALIFORNIA.		
Chico	California State Normal School	Robert F. Pennell.
Los Angeles	State Normal School	Edward T. Pierce.
San Francisco	San Francisco Normal School	Laura F. Fowler.
San Jose	State Normal School	A. H. Randall.
COLORADO.		
Greeley	Colorado State Normal School	Z. X. Snyder.
CONNECTICUT.		
Bridgeport	Bridgeport Training School	Miss Emma G. Olmstead.
New Britain	Normal Training School	Marcus White.
New Haven	State Normal Training School	Arthur B. Morrill.
Willimantic	do	George P. Phenix.
DISTRICT OF COLUMBIA.		
Washington	Washington Normal School	Mrs. Idaliah G. Meyers.
Do	Washington Normal School, seventh and eighth divisions.	Lucy E. Moten.
DELAWARE.		
Wilmington	Wollaston School	Miss Mary C. I. Williams.
FLORIDA.		
De Funiak Springs	Florida State Normal School	C. P. Walker.
Tallahassee	Florida State Normal and Industrial College.	T. De S. Tucker.
GEORGIA.		
Athens	State Normal School	S. D. Bradwell.
Milledgeville	Georgia Normal and Industrial College.	J. Harris Chappell.
IDAHO.		
Albion	Albion State Normal School	Frank A. Swanger.
Lewiston	Lewiston State Normal School	Geo. E. Knepper.
ILLINOIS.		
Carbondale	Southern Illinois State Normal University.	H. W. Everest.
Chicago, Station O	Chicago Normal School	Francis W. Parker.
Normal	Illinois State Normal University	John W. Cook.
INDIANA.		
Indianapolis	Indianapolis Normal School	M. E. Nicholson.
Lexington	Lexington High School	W. N. Parks.
Terre Haute	Indiana State Normal School	William W. Parsons.
IOWA.		
Boonesboro	Boone County Normal Institute	B. P. Holst.
Cedarfalls	Iowa State Normal School	Homer H. Seerley.
Dexter	Dexter Normal School	W. H. Monroe.
Kossuth	Kossuth Normal Academy	J. K. McCullough.
Rockwell City	Calhoun County Normal School	P. C. Holdoegel and G. B. Rigg.
Woodbine	Woodbine Normal School	M. A. Reed.
KANSAS.		
Emporia	State Normal School	A. R. Taylor.
KENTUCKY.		
Frankfort	State Normal School for Colored Persons.	John H. Jackson.
Hazard	Hazard Normal School	Bailey P. Wootton.
Louisville	Louisville Normal School	W. J. McConathy.
Upton	Uptonville Institute	J. L. Pilkenton.

IV.—Principals of Normal Schools—Continued.

Public normal schools—Continued.

Location.	Name of institution.	Principal.
LOUISIANA.		
Natchitoches	Louisiana State Normal School	R. C. Caldwell.
New Orleans	New Orleans Normal School	Miss Marion Brown.
MAINE.		
Castine	Eastern State Normal School	Albert F. Richardson.
Farmington	Farmington State Normal School	George C. Purington.
Fort Kent	Madawaska Training School	Vetal Cyr.
Gorham	State Normal School	W. J. Corthell.
MARYLAND.		
Baltimore	Maryland State Normal School	E. B. Prettyman.
Do	Baltimore Normal School for Education of Colored Teachers.	George Harrison.
MASSACHUSETTS.		
Boston	Boston Normal School	Larkin Dunton.
Do	Massachusetts Normal Art School	George H. Bartlett.
Bridgewater	State Normal School	Albert G. Boyden.
Cambridge	Cambridge Training School for Teachers.	Herbert H. Bates.
Fitchburg	State Normal School	John G. Thompson.
Framingham	do	Ellen Hyde.
Salem	do	W. P. Beckwith.
Westfield	do	J. C. Greenough.
Worcester	do	E. Harlow Russell.
MICHIGAN.		
Detroit	Detroit Normal Training School	Harriet M. Scott.
Mount Pleasant	Michigan Central Normal School	Charles McKenney.
Ypsilanti	Michigan State Normal School	Richard G. Boone.
MINNESOTA.		
Mankato	State Normal School	Edward Searing.
Moorhead	do	L. C. Lord.
St. Cloud	do	George R. Kleeberger.
St. Paul	Teachers' Training School	Miss S. M. Phelan.
Winona	State Normal School	Irwin Shepard.
MISSISSIPPI.		
Ackerman	Central Mississippi Normal Institute	J. A. Hudson.
Holly Springs	Holly Springs Normal Institute	W. A. Anderson.
Do	Mississippi State Normal School	E. D. Miller.
Louisville	Louisville Normal School	J. T. McIntosh.
Plattsburg	Winston Normal High School	R. R. Hutcheson.
Sherman	Mississippi Normal Institute	D. H. Davis.
Troy	Mississippi Normal High School	R. L. Crosthwait.
Walnutgrove	Mississippi Central Normal School	Prof. Cox.
MISSOURI.		
Cape Girardeau	State Normal School	John S. McGhee.
Gainesville	Gainesville Normal School	W. S. Platt.
Kirksville	State Normal School (first district)	W. D. Dobson.
St. Louis	Normal and High School	William J. S. Bryan.
Warrensburg	State Normal School (second district)	George L. Osborne.
NEBRASKA.		
Peru	Nebraska State Normal Training School.	J. A. Beattie.
NEW HAMPSHIRE.		
Plymouth	State Normal School	A. H. Campbell.
NEW JERSEY.		
Newark	Newark Normal and Training School.	Joseph Clark.
Paterson	Paterson Normal Training School	Wm. J. Slattery.
Trenton	New Jersey State Normal and Model Schools.	James M. Green.
NEW MEXICO.		
Silver City	Normal School of New Mexico	C. M Light.
NEW YORK.		
Albany	New York State Normal College	Wm. J. Milne.
Brockport	State Normal and Training School	Chas. D. McLean.
Brooklyn	Training School for Teachers	John Gallagher.
Buffalo	Buffalo Normal School	James M. Cassety.
Cortland	State Normal and Training School	Francis J. Cheney.
Fredonia	do	F. B. Palmer.

IV.—Principals of Normal Schools—Continued.

Public normal schools—Continued.

Location.	Name of institution.	Principal.
NEW YORK—continued.		
Geneseo	Geneseo State Normal School	John M. Milne.
New Paltz	State Normal School	Frank S. Capen.
New York	Normal College of the City of New York.	Thomas Hunter.
Oneonta	State Normal School	James M. Milne.
Oswego	Oswego State Normal and Training School.	Edward A. Sheldon.
Plattsburg	State Normal School	Edward N. Jones.
Potsdam	State Normal and Training School	Thomas B. Stowell.
Syracuse	Syracuse High School, Normal Department.	Wm. K. Wickes.
NORTH CAROLINA.		
Elizabeth City	State Colored Normal School	P. W. Moore.
Fayetteville	do	E. E. Smith.
Franklinton	Albion Academy and State Normal School.	Rev. J. A. Savage.
Goldsboro	State Normal School	R. S. Rives.
Greensboro	State Normal and Industrial School	Charles D. McIver.
Plymouth	Plymouth State Normal School	H. C. Crosby.
Salisbury	State Normal School	J. O. Crosby.
NORTH DAKOTA.		
Mayville	State Normal School	J. T. Perigo.
Valley City	do	George A. McFarland.
OHIO.		
Cincinnati	Cincinnati Normal School	Mrs. Carrie N. Lathrop.
Cleveland	Cleveland Normal and Training School.	Miss L. W. Hughes.
Columbus	Columbus Normal School	Margaret W. Sutherland
Dayton	Dayton Normal School	Grace A. Greene.
Geneva	Geneva Normal School	J. P. Treat.
Wadsworth	Wadsworth Normal School	Frank A. Day.
OKLAHOMA.		
Edmond	Territorial Normal School of Oklahoma.	Edmund H. Murdaugh.
OREGON.		
Drain	Oregon State Normal School	Louis Barzee.
Monmouth	State Normal School	P. L. Campbell.
Weston	do	M. G. Royal.
PENNSYLVANIA.		
Bloomsburg	State Normal School and Literary Institute.	Judson P. Welsh.
California	Southwestern State Normal School	Theo. B. Noss.
Clarion	Clarion State Normal School	A. J. Davis.
East Stroudsburg	East Stroudsburg State Normal School.	George P. Bible.
Edinboro	State Normal School	J. R. Flickinger.
Kutztown	Keystone State Normal School	Rev. George B. Hancher.
Lockhaven	Central State Normal School	James Eldon.
Mansfield	Mansfield State Normal School	S. H. Albro.
Millersville	First Pennsylvania State Normal School.	E. Oram Lyte.
Philadelphia	Philadelphia Normal School for Girls	George Howard Cliff.
Pittsburg	Pittsburg High School, normal department.	C. B. Wood.
Shippensburg	Cumberland Valley State Normal School.	G. M. D. Eckels.
Slippery Rock	Slippery Rock State Normal School	Albert E. Maltby.
West Chester	State Normal School	George M. Philips.
RHODE ISLAND.		
Providence	Rhode Island State Normal School	William Ed. Wilson.
SOUTH CAROLINA.		
Beaufort	Beaufort Academy	Augustus S. Bascomb.
Rockhill	Winthrop Normal College	D. B. Johnson.
SOUTH DAKOTA.		
Madison	State Normal School	W. H. H. Beadle.
Spearfish	do	F. L. Cook.

IV.—Principals of Normal Schools—Continued.

Public normal schools—Continued.

Location.	Name of institution.	Principal.
TEXAS.		
Detroit	Detroit Normal School	Cass Rose.
Huntsville	Sam Houston Normal Institute	H. C. Pritchett.
Timpson	Timpson High School	J. B. Ramsey.
VERMONT.		
Castleton	State Normal School	Abel E. Leavenworth.
Johnson	do	W. E. Ranger.
Randolph Center	do	Edward Conant.
VIRGINIA.		
Farmville	State Female School of Virginia	John A. Cunningham.
Hampton	Hampton Normal and Agricultural Institute.	H. B. Frissell.
Rye Cove	Washington Institute	R. E. Wolfe.
WASHINGTON.		
Cheney	State Normal School	James J. Rippetoe.
Ellensburg	do	P. A. Getz.
WEST VIRGINIA.		
Athens	Athens State Normal School	John D. Sweeney.
Fairmont	Fairmont State Normal School	J. Walter Barnes.
Farm	West Virginia Colored Institute	John H. Hill.
Glenville	Glenville State Normal School	W. J. Halden.
Huntington	Marshall College	L. J. Crosby.
Shepherdstown	Shepherd College, State Normal School.	A. C. Kimler.
West Liberty	West Liberty State Normal School	J. N. Deahl.
WISCONSIN.		
Milwaukee	State Normal School	L. D. Harvey.
Oshkosh	do	George S. Albee.
Platteville	do	James Chambers.
River Falls	River Falls State Normal School	W. D. Parker.
Stevens Point	State Normal School	Theron B. Pray.
West Superior	Superior State Normal School	J. C. McNeill.
Whitewater	State Normal School	Albert Salisbury.

Private normal schools.

ALABAMA.		
Huntsville	Central Alabama Academy	A. W. McKinney.
Scottsboro	Tri-State Normal University	O. J. Dodge.
Selma	Burrell Academy	A. T. Burnell.
Tuskegee	Tuskegee Normal and Industrial Institute.	B. T. Washington.
Vernon	Vernon Institute	C. V. Thompson.
ARKANSAS.		
Arkadelphia	Shorter University	S. H. Jackson.
Bellville	Belleville Normal College	D. F. Montgomery.
Clarksville	Arkansas Cumberland College	J. A. Laughlin.
Little Rock	Arkansas Baptist College	J. A. Booker.
Southland	Southland College and Normal Institute.	Edgar Ballard.
Sulphur Rock	Sulphur Rock College	J. W. Decker.
CALIFORNIA.		
Los Angeles	Fröbel Institute	Carolyn M. N. Claverie.
Martinez	Novitiate of the Brothers of the Christian School.	Brother Theodorus.
Oakland	Gilson's Normal and Special Training School.	J. C. Gilson.
San Francisco	California Kindergarten Training School.	Nora A. Smith.
COLORADO.		
Denver	Denver Normal and Preparatory School.	Fred. Dick.
DELAWARE.		
Newark	Academy of Newark	J. D. Jaquette.

IV.—Principals of Normal Schools—Continued.

Private normal schools—Continued.

Location.	Name of institution.	Principal.
DISTRICT OF COLUMBIA.		
Washington	Kindergarten Normal Training School.	Mrs. Louise Pollock.
FLORIDA.		
Jasper	Jasper Normal Institute	J. M. Guilliams.
Liveoak	Florida Institute	Rev. George P. McKinney.
Orange Park	Orange Park Normal and Manual Training School.	W. H. Blish.
Whitesprings	Florida Normal College	Thomas B. Kirk.
GEORGIA.		
Atlanta	Spelman Seminary	Miss Harriet E. Giles.
Demorest	Demorest Normal School	J. S. Jennings.
Greensboro	Thomas Stocks Institute	N. H. Ballard.
Macon	Ballard Normal School	George C. Burrage.
Monroe	Johnston Institute	John Gibson.
Savannah	Beach Institute	Julia B. Ford.
Thomasville	Allen Normal and Industrial School	Amelia Merriam.
Trenton	Trenton Normal College	George P. Welch.
ILLINOIS.		
Addison	German Evangelical Lutheran Teachers' Seminary.	E. A. W. Krauss.
Bushnell	Western Normal College	W. M. Evans.
Dixon	Northern Illinois Normal School	J. B. Dille.
Do	Steinmann Institute	Charles A. Steinmann.
Galesburg	Galesburg Kindergarten Normal School.	M. Evelyn Strong.
Macomb	Western Illinois Normal School and Business Institute.	I. F. Meyer.
Mount Morris	Mount Morris College	J. G. Royer.
Onarga	Grand Prairie Seminary	S. Van Pelt.
Oregon	Wells School for Teachers	E. L. Wells.
Rushville	Rushville Normal and Business College.	Maxwell Kennedy.
INDIANA.		
Anderson	Anderson Normal University	William W. Croan.
Angola	Tri-State Normal School	L. M. Sniff.
Borden	Borden Institute	H. A. Buerk.
Corydon	Ohio Valley Normal School	E. S. Hallett.
Covington	Indiana Normal College	Olive E. Coffeen.
Danville	Central Normal College and Commercial Institute.	J. A. Joseph.
Fairmount	Fairmount Academy and Normal School.	Elwood O. Ellis.
Indianapolis	Indiana Kindergarten and Primary Normal Training School.	Eliza A. Blaker.
Marion	Marion Normal College	S. W. Boucher.
Mitchell	Southern Indiana Normal College	Mrs. A. K. H. Gilbert.
Portland	Portland Normal, Music, and Law School.	L. M. Holmes.
Valparaiso	Northern Indiana Normal School	H. B. Brown.
IOWA.		
Afton	Afton Normal and Business College	Albert G. Owen.
Algona	Northern Iowa Normal and Commercial School.	A. J. Lilly.
Bloomfield	Southern Iowa Normal, Scientific, and Business Institute.	A. A. Williams.
Carroll	Carroll Normal and Business College	A. E. Whitten.
Decorah	Valder Normal School	C. H. Valder.
Denison	Denison Normal School	W. C. Van Ness.
Des Moines	Highland Park Normal College	C. C. Rearick.
Glidden	National Normal School and Business College.	E. L. Essley.
Lemars	Lemars Normal School and Business College.	F. M. Chaffee.
Mount Pleasant	Howe's Academy and Teachers' Training School.	S. C. Howe.
Newton	Newton Normal College	G. W. Wormley.
Nora Springs	Nora Springs Seminary	H. A. Dwelle.
Ottumwa	Ottumwa Normal School	Martha A. Peck.
Perry	Perry Normal School	Will M. Tarr.
Shenandoah	Western Normal College, Shenandoah Commercial Institute and Musical Conservatory.	J. M. Hussey.
Spirit Lake	Spirit Lake Normal and Business Institute.	H. Welty.
Vinton	Tilford Academy	T. F. Tobin.
Waukon	Waukon Business College and Normal School.	L. Eells.

IV.—Principals of Normal Schools—Continued.

Private normal schools—Continued.

Location.	Name of institution.	Principal.
KANSAS.		
Conway Springs	Normal and Business College	S. D. Crane.
Fort Scott	Kansas Normal College	D. E. Sanders.
Great Bend	Central Normal College	A. S. Hull.
Marysville	Modern Normal College	J. G. Ellenbecker.
McPherson	McPherson College (Normal dept.)	A. C. Wieand.
Salina	Salina Normal University	Charles Swisher.
Winfield	Southwest Kansas College, Normal department.	Chester A. Place.
KENTUCKY.		
Blaine	Blaine Normal School	G. Milton Elam.
Bowling Green	Bowling Green Business College and Southern Normal School.	H. H. and T. C. Cherry.
Bremen	Bremen College	P. G. Shaver.
Cornith	Northern Kentucky Normal School	Marion Pfanstiel.
Fulton	Fulton Normal and Business College	A. M. Kirkland.
Hardinsburg	Breckinridge Normal School	D. S. Roberts.
Irvine	Irvine Training School	J. E. Wright.
Jackson	Jackson Collegiate Institute	E. P. Mickle.
Lexington	Chandler Normal School	Fannie J. Webster.
Madisonville	Western Kentucky Normal School	H. Evelyn Brooks.
Morehead	Morehead Normal School	F. C. Bulton.
Temple Hill	Temple Hill Normal College	J. W. Davis.
Waddy	Central Normal School and Business College.	J. B. Secrest.
LOUISIANA.		
Baldwin	Gilbert Academy and Industrial Institute.	A. E. P. Albert.
MAINE.		
Bucksport	E. M. Conference Seminary	Rev. A. F. Chase.
Hampden	Hampden Academy	George C. Webber.
Lee	Lee Normal Academy	James D. Murphy.
Springfield	Springfield Normal School	Ernest H. Pratt.
MARYLAND.		
Ammendale	Ammendale Normal Institute	Brother Christian.
Buckeystown	Buckeystown Normal Training School.	F. R. Neighbours.
Rising Sun	Friends' Normal Institute	Thomas D. Bowers.
MASSACHUSETTS.		
Boston	Chauncy Hall Normal Class	Lucy Wheelock.
Waltham	Notre Dame Training School	Sister Georgiana.
Worcester	Kindergarten Normal Class	Anna C. Rust.
MICHIGAN.		
Fenton	Fenton Normal School and Commercial College.	W. A. Stevenson.
Flint	Flint Normal School	John B. Welch.
Owosso	Oakside School	Mrs. L. E. Gould.
Petoskey	Graves Normal Academy	M. O. Graves.
MINNESOTA.		
Madison	Normal School of the United Norwegian Lutheran Church.	O. Lokensgard.
New Ulm	Dr. Martin Luther College	John Schaller.
MISSISSIPPI.		
Abbeville	Abbeville Normal School	E. T. Keeton.
Bellefontaine	Bellefontaine High School	W. B. Walker.
Houston	Mississippi Normal School	H. B. Abernethy.
Iuka	Iuka Normal College	H. A. Dean.
Lake Como	Lake Como Normal School	Homer M. Knowles.
Meridian	Meridian Academy	J. L. Wilson.
Poplar Springs	Poplar Springs Normal College	John D. Mitchell.
Tougaloo	Normal Department Tougaloo University.	Ernest C. Moore.
Tula	Tula Normal Institute and Business College.	C. C. Hughes.
Yale	Oakland Normal Institute	G. A. & J. T. Holleys.
MISSOURI.		
Clarksburg	Hooper Institute	W. C. Lebring.
College Mound	McGee College	J. B. Creighton.
Eldorado Springs	Eldorado Normal and Business College.	W. H. Miller.

IV.—Principals of Normal Schools—Continued.

Private normal schools—Continued.

Location.	Name of institution.	Principal.
MISSOURI—continued.		
Licking	Licking College	Gilbert Lay.
Pleasant Hope	Pleasant Hope Normal Academy	J. F. Martin.
Stanberry	Stanberry Normal School	John E. Fesler.
Thornfield	Thornfield Normal Institute	J. E. Smith.
Weaubleau	Weaubleau Christian College	J. Whitaker.
NEBRASKA.		
Fremont	Fremont Normal School	W. H. Clemmons.
Normal	Lincoln Normal University	Hill M. Bell.
Santee Agency	Santee Normal Training School	Alfred L. Riggs.
Stromsburg	Bryant Normal University	J. J. Bryant.
Wayne	Nebraska Normal College	J. M. Pile.
NEW YORK.		
Buffalo	School of Pedagogy, University of Buffalo.	Frank M. McMurry.
New York	Teachers' College	Walter L. Hervey.
NORTH CAROLINA.		
Asheville	Normal and Collegiate Institute	Rev. Thos. Lawrence.
Beaufort	Washburn Seminary	P. S. Hitchcock.
Concord	Scotia Seminary	D. J. Satterfield.
Kings Mountain	Lincoln Academy	Lilian S. Cathcart.
Lumberton	Whitin Normal School	D. P. Allen.
Poes	Buies Creek Academy	Rev. J. A. Campbell.
Raleigh	St. Augustine's School	Rev. A. B. Hunter.
Traphill	Fairview College	Edwin J. Johnson.
Wilmington	Gregory Normal Institute	Geo. A. Woodard.
Winston	Waters Normal Institute	C. S. Brown.
NORTH DAKOTA.		
Grand Forks	Grand Forks College	C. B. Blake, jr.
OHIO.		
Ada	Ohio Normal University	H. S. Lehr.
Augusta	Augusta Normal School	A. M. Fishel.
Canfield	Northeastern Ohio Normal College	John A. Cummins.
Dayton	St. Mary's Academy	F. Spencer.
Defiance	Defiance College	John R. H. Latchaw.
Ewington	Ewington Academy	F. H. Mutchler.
Fayette	Fayette Normal University	J. E. Dodds.
Fostoria	Fostoria Normal and Academy	R. L. De Rau.
Lebanon	National Normal University	Alfred Holbrook.
Middlepoint	Western Ohio Normal School	T. A. Davies.
New Philadelphia	John P. Kuhn's Normal School	John P. Kuhn.
Piketon	Southern Ohio School of Pedagogy	Levi B. Moore.
Woodville	Teachers' Seminary	Theo. Mees.
PENNSYLVANIA.		
Ebensburg	Ebensburg Normal Institute	H. T. Jones.
Huntingdon	Juniata College	M. G. Brumbaugh.
Indiana	Indiana Normal School of Pennsylvania.	D. J. Waller, jr.
Muncy	Lycoming County Normal School	Fred Woods Robbins.
Philadelphia	Institute for Colored Youth	Mrs. Fannie J. Coppin.
Pittsburg	Curry College	S. F. Hogue.
Rimersburg	Clarion Collegiate Institute	W. L. Smith.
Waynesburg	Waynesburg College	Rev. A. B. Miller.
SOUTH CAROLINA.		
Aiken	Schofield Normal and Industrial School.	Martha Schofield.
Charleston	Avery Normal Institute	Morrison A. Holmes.
Do	Wallingford Academy	Rev. David Brown.
Chester	Brainerd Institute	J. S. Marquis.
Frogmore	Penn Normal and Industrial School	Miss Ellen Murray.
Greenwood	Brewer Normal School	Rev. J. M. Robinson.
SOUTH DAKOTA.		
Sioux Falls	Lutheran Normal School	Rev. A. Mikkelsen.